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ABSTRACT

Focusing on the management of vocational curricula with a special emphasis on individualized instruction, a research and development project had a fourfold purpose: (1) design and development of a statewide curriculum management system (CMS), (2) testing of that system by developing additional individualized student materials and adapting existing materials, (3) preparation of materials to improve local administrators' skills in curriculum management and instructor leadership for their teachers, and (4) preparation of support and staff development modules for teachers implementing the individualized instruction approach. Four major products were developed: Curriculum Management System Handbook for supervisors and administrators (CE 024 008): Curriculum Management System Handbook, State Level (CE 024 007): four teacher's guides: and an individualized health occupations program. The state level CMS handbook suggests a CMS developed around five basic functions: management, development, reproduction, diffusion/dissemination, and evaluation/revision. In addition to outlining a CMS method for the local level, the vocational administrator's handbook contains a task listing, classroom/lab budget planning, model, workforce data analysis, and student and employer followup. Teaching guides were developed for transportation, construction, auto body repair, and machine shop programs using a three-volume format. (A copy of a unit from the individualized Health Occupations-Teachers Education program is appended.) (YLB)

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Final Report

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The Development and Testing of a Statewide Multilevel Curriculum Management System for Georgia Vocational Education Programs

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ABSTRACT

The Development and Testing of a Statewide, Multi-level Curriculum Management System for Georgia Vocational Education Programs.

In an era of high demand for vocational education services from a variety of target populations, available resources and manpower must be used as efficiently as possible. Couple those circumstances with the need and desire to improve the quality and flexibility of vocational curricula, and the urgency for effective management becomes a ranking priority.

Georgia vocational education leaders are already working to improve the quality and flexibility of their curricula. Time and resources have been expended to produce reliable task analyses and an individualized system of instruction. The goals for that individualized system are to: 1) Provide for open-entry and open-exit; 2) introduce inter and intra program flexibility; 3) maintain for the moment and gradually improve the quality of the instructional programs. Such a commitment requires the most efficient use of available resources and manpower.

To begin to move the currently developed individualized student materials into classrooms on a statewide basis while maintaining an organized materials development, evaluation, and revision effort required the use of a well-developed curriculum improvement plan and the best management strategies available. To that end, this project had a fourfold purpose: 1) Through appropriate research and study design, develop and recommend a statewide curriculum management system. 2) Test that system by attempting to develop additional individualized student materials and by adapting existing materials for use in other instructional programs such as work study, coop programs. 3) Prepare materials to improve the

skills of local supervision in managing their curriculum and providing instructional leadership for their teachers. 4) Prepare support and staff development modules to be used by teachers who are implementing the individualized instruction approach.

To fulfill this purpose, three objectives were established for this project:

Objective 1

Develop and try out a curriculum management system for Georgia Vocational Education programs.

Objective 2

Develop and test models and materials for each component of the curriculum management system to be used by vocational supervisors and teachers in implementing the curriculum management system at the school building level.

Objective 3

Prepare a plan for implementing the system and materials developed in objectives one and two as an internal part of Georgia Vocational Education programs.

A variety of strategies were systematically employed to accomplish these objectives. The narrative section of this report will outline these strategies in detail and identify the various products of this project. It will also describe how the project achieved these objectives.

Project C651 Final Report

Introduction

One of the significant findings of this project was the system for organizing and developing individualized instruction. This system is presented in the section beginning on page 41. The system was based on the practical application of ISD including the organization and management of people. The contaminating variable is the quality and commitment of the team leader. This person must be somewhat skilled in curriculum development and at this point we have to say should be well versed in subject area content even though our original hypothesis was that curriculum design mastery was all that was required. Our on-line leader was skilled in the content area and supported by a faculty member with expertise in curriculum design and one with content expertise. However, because we were successful in preparing teacher's guides with non-content staff, we are unwilling to reject our original hypothesis that the design expert is all that is required to produce good vocational curriculum materials.

The research basis for each of the project's products is described in each respective section of this report. What type of research have we performed?

This was a research and development project. Using the best available data and theories of instructional systems design, we have prepared a set of products to improve the overall vocational curriculum and to individualize and improve the health occupation programs at all levels. Consideration was also given to three other basic theories:

1 - mastery learning

2 - educational change

3 - ISD

This project focused primarily on the management of vocational curricula with a special emphasis on individualized instruction. It does not address vocational planning in a comprehensive sense.

Major Activities and Accomplishments

This section of this report will identify and describe the major activities and accomplishments of this project. The information included in this section will also cover those items which would normally fall under the category, significant findings and events.

The first part of this section will specify the products which were developed by this project including the page number of the section in which specific examples can be found. Following this part, specific examples of each of the products will be exhibited and explained.

Specification of Products

In addition to this final report, the following products were produced by this project:

Product One: Curriculum Management System Handbook for supervisors and administrators--the purpose of this handbook is to assist the vocational supervisor and administrator in implementing the CMS at the local level. (Page 54)

Product Two: Curriculum Management System Handbook, State Level--This handbook suggests a curriculum management system to be implemented at the state level. (p.5)

Product Three: Specific Teacher's Guides--Four teacher's guides were developed using a three-volume format. (See pages 93-96). Two of the teacher's guides were for secondary cluster programs. These were:

1. Transportation
2. Construction

The other two teacher's guides were developed for post-secondary programs. These were:

1. Auto-body Repair
2. Machine Shop

Product Four: Individualized Health Occupations Program--An articulated self-paced competency-based curriculum was developed for the Licensed Practical Nurse Program including individualized instruction units (student's) and all supporting materials including teacher's guides. (Page 100)

The Suggested State Level
Curriculum Management System

The following section will exhibit specific features of the state-level CMS handbook. Each section represents a significant feature of the handbook.

Theoretical Considerations:

The preface to the CMS state-level handbook outlines the need for a curriculum management study and the theoretical considerations of the project staff in conducting the study. The following pages are copies of this preface.

Preface

The development of this model state level curricuium management system is the outgrowth of a basic movement by vocational educators to improve the quality of curriculum materials available to vocational programs. The serious nature of this movement is evidenced by the specific inclusion of curriculum development in both the Vocational Education Amendments of 1968 (PL 90-576) and the Education Amendments of 1976 (PL 94-482; Title II); the creation of a National Network for Curriculum Coordination by the U.S. Office of Education; and the establishment of curriculum units and materials centers by the state department of education vocational education bureaus in numerous states.

Limited formal work has been done in the area of curriculum management as a state level function. In preparing for this project the authors were able to find only two journal articles actually discussing curriculum management from a statewide perspective. One of these articles was based on the functions of the senior author's curriculum unit in the Georgia Department of Education. The other was prepared as a generic approach to curriculum management. To obtain sufficient information, the current activities of four state curriculum coordinating units were investigated. A review was made of the current processes used by the Georgia curriculum coordinating unit, an on site visit was made to the State Department of Education in Florida and to the curriculum center at Florida State University; papers from the North Dakota curriculum unit were reviewed; and proposals, papers, contracts and other documents from the USOE regional center for the National Curriculum Network at Mississippi State University were analyzed.

From this information the authors formed the working model for the state level curriculum management system described in the remainder of this manuscript. This model provides an organized system for curriculum management while leaving each state that may choose to implement it the flexibility to define and adjust the various components to suit its peculiar needs.

Paul Scott
February 20, 1979

The following excerpts from the CMS state level model will describe the general functional basis of the model.

Introduction

Rationale for Applied Curriculum Management

For many years, state departments of education have assumed the role of regulatory agencies. However, recent national trends have indicated that vocational education divisions within state departments of education are moving toward a leadership role, as opposed to the former regulatory position. These bureaus are now concentrating on program improvement at the grassroots (classroom) level, and many states have already formed special units to provide the leadership for their concentration on improvement. Many of these units, however, are currently operating on a management-by-crisis basis, or through a project-by-project arrangement, stemming from a lack of long-range planning and a systematic approach to educational improvement.

The purpose of this document is to propose a system for managing curriculum improvement at the state level. The paper will address this purpose in three steps.

The first step will be to identify the basic functions necessary for a statewide curriculum management effort. These functions will be used to establish the framework for a model curriculum management system (CMS).

The second step will address the supporting activities required to initiate the operation and maintenance of such a system. These activities will be explained using the general management functions of planning, organizing (including staffing as a sub-function), implementing, controlling and evaluating. The third step will introduce a proposed model system for state level curriculum management.

Functional Basis for the CMS

Vocational education as a whole succeeds or fails on the basis of quality instruction. Research has not yet fully developed all of the contributors to quality instruction. However, one obvious contributor to successful teaching/learning is well-developed, conceptually sound curriculum materials. Such materials do not generate themselves. Provisions must be made for the planning, implementing and evaluating of these materials. To accomplish this, a leadership commitment from state departments of education must be established before the development of an operational state level curriculum management system.

The curriculum coordinating center at Mississippi State University has introduced five generic curriculum management functions. These functions are: management, development, reproduction, diffusion/dissemination and evaluation/revision (Wall, 1972). In a presentation to the National Network for Curriculum Coordinators, Scott (1976) identified subordinate tasks for each of these functions. From these functions and subordinate tasks this model state level curriculum management system has been prepared.

Overview of the Framework for a CMS Model

The model should be developed around five basic functions (management, development, reproduction, diffusion/dissemination and evaluation/revision). The duties and tasks that complete these functions will form the basic framework for the model. A description of each function follows.

The Management Function

Curriculum planning is a functional part of the overall statewide planning system for vocational education. Therefore, it must be judiciously related to the state's master plan for vocational education. Curriculum, however, is a critical element in the master plan and as such will require specific attention and care. This indicates that the planning and development of curriculum needs governance, which governance should be a component part of the office of the State Director of Vocational Education and should include the accepted management activities of organizing, planning, implementing, controlling and evaluating. The following duties and tasks are designed to fulfill the state level curriculum management function:

I. Establish operational policies and procedures for the system.

II. Appoint curriculum coordinating committees from local vocational educators, vocational teacher educators, state department service area staff and business/industry.

III. Designate an executive council to function as the official decision-making body of vocational curriculum development activities.

IV. Assign a curriculum staff to provide leadership and the administrative activities necessary to maintain the system.

V. Perform needs assessments.

VI. Determine priorities.

VII. Develop a budgeting procedure.

The Development Function

The development function follows the sequential decisions made during the management function relative to defining needs, establishing priorities of the identified needs and budgeting the priorities. It includes not only the actual development of curriculum materials but also procuring materials from other sources, modifying them if necessary and testing their utility/effectiveness. The following management tasks will be required to implement this function:

I. Develop and publish specifications.

II. Initiate developmental projects either through annual plan funding or grants and contracts.

III. Provide procedures for project monitoring.

The Reproduction Function

The very best materials will be of little value if they are not reproduced in sufficient quantities to reach teachers and students. Therefore, some economically feasible process that will reproduce the material in both quality and quantity format must be identified and utilized. The alternatives for reproduction include private publishers, commercial printers, and state department or university materials centers. Many states are now using state department or university materials for this purpose are doing so for three basic reasons: 1) some costs can be recovered through this process; 2) the small quantities of materials required are not profitable to commercial publishers; and 3) good vocational materials require frequent updating and adjusting making their reproduction even more unprofitable. An organized materials center(s) will have the capacity to make these changes as they are needed.

The Diffusion/Dissemination Function

The goal of this function is to place the materials produced through the curriculum management system into use in the classroom, laboratories, and shops of vocational educational programs. This function requires a strict emphasis on staff development as a precursor to installing new curricular materials in a given vocational education program. It also requires an organized plan to provide the new materials to the teacher in sufficient quantity to make the installation a reality.

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The Evaluation/Revision Function

The interrelated functions of evaluation and revision must focus on both the curriculum materials being developed and the utility of the curriculum management system itself. In addition to the initial evaluation/revision cycle of the system, the evaluation/revision process should continue over the life of the system. Because of the dynamic nature of the model curriculum management system, the following components should be analyzed independently and collectively as a part of the evaluation/revision cycle of the CMS:

1. Procedures and guidelines
2. Communication/coordination between individuals, units, or groups
3. Effectiveness of decision making units
4. Clarity of assignment of responsibilities
5. Appropriate scheduling of materials development and field test
6. Proper functioning of the diffusion system
7. Proper functioning of the dissemination system

A systems evaluation/revision based on the above components would, therefore, include a summary of the activities, products, and objectives of each phase and would answer the question, "Did all phases of the system function according to plan?"

A materials evaluation/revision would analyze:

1. Objectives
2. Learning activities
3. Student resource materials
4. The field test site
5. Criterion referenced tests
6. Performance (skill) tests

The materials evaluation/revision would also ask the question, "Is the developmental process on schedule?"

The CMS Model

The heart of the project was the development of a suggested curriculum management system for vocational education (objectives 1 and 2 of the project). This work was conducted on 2 levels: 1) a state level curriculum management system and 2) a curriculum management handbook for vocational administrators to aid in implementing the curriculum management system at the local level.

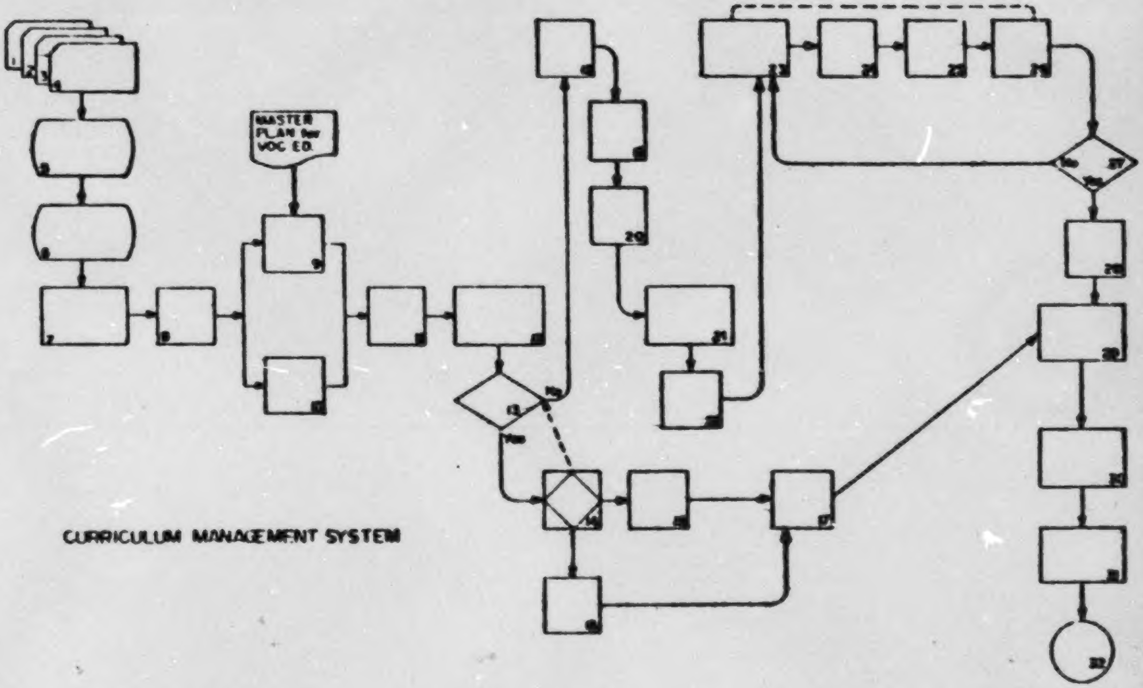
The Curriculum Management System (CMS) is a thirty-two step plan suggested for use by State Department of Education vocational education staffs. The model is designed to flow from the overall master plan for vocational education. The following flow chart and accompanying legend describes the CMS.

Key to CMS Chart

PHASE/ACTIVITY	BLOCK NUMBER (Cross-referenced to flowchart)	ACTIVITY OR SOURCE
Input sources	1.	Teacher Educators
	2.	Local Vocational Educators
	3.	OVE Staff (SDE)
	4.	Business, Labor and Industry
Organization	5.	Instructional Area Curriculum Committee
	6.	OVE Executive Committee
	7.	OVE Curriculum Staff

PHASE/ACTIVITY	BLOCK NUMBER (Cross-referenced to flowchart)	ACTIVITY OR SOURCE
Phase I	8.	Needs Assessment
	9.	Identify programs desired (based on the master plan)
	10.	Take inventory relative to that plan
	11.	Determine discrepancy between 9 & 10 and list needs
Phase II	12.	Search for existing materials
	13.	Decision: develop or procure
SUBROUTINE FOR PROCURING MATERIALS	14.	Screening process for procured materials
	15.	If ready to use the material go to block 17
	16.	Field test procured materials
	17.	State editing of procured materials
	18.	List materials to be developed in priority order.
	19.	Assign funds and resources
	20.	Prepare specifications and RFP's
Phase III	21.	Select appropriate developer
	22.	Implement the developmental project
	23.	Develop materials
	24.	Face validate materials
	25.	Pilot test
	26.	Field test

PHASE/ACTIVITY	BLOCK NUMBER (cross-referenced to flowchart)	ACTIVITY OR SOURCE
	27.	Does the product work (if not, recycle)
	28.	State Editing
	29.	Have materials reproduced in quantity
	30.	Diffuse materials including staff development and materials support plan
Phase IV	31.	Evaluation
	32.	Revision


MASTER PLAN for VOC ED.
13
Yes
No
14
17
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Yes
No
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32

CURRICULUM MANAGEMENT SYSTEM

Figure 1

The Management Plan for the CMS

As previously stated, curriculum, as a critical element in the master plan for vocational education, requires specific attention and care. To accomplish this, management of curriculum should be a component part of the state vocational education director's office and should be based on the management functions of planning, organizing, implementing, controlling and evaluating. Each of these functions requires the assignment of specific duties and tasks relative to the management of curriculum within the CMS.

With respect to the CMS, the planning function includes by definition the specification of all necessary considerations and components required to prepare the system for implementation. Planning for the CMS includes, among other things, establishing for the system a mission which must be coordinated with the master plan for vocational education. In addition, planning for the system should identify the human and fiscal resources necessary to operate and maintain the system. Sufficient time must be provided for the planning function to establish the system or the entire operation will never become stabilized.

Organizing the system will include establishing both the specification of tasks assigned to each position, committee, or council and the delegation of the authority necessary to carry out the assigned tasks. In addition, the authority relationships are specified (the chain of command) to clarify reporting relationships. The organizing function includes staffing and the assignment of personnel qualified to assist in attaining the objectives and goals of the system. Organizing the system will include:

I. Developing an executive council to oversee the curriculum effort.

II. Appointing curriculum committees by instructional area to determine existing deficits and needs, and to assist in establishing criteria for replacement curricular materials.

III. Establishing a curriculum unit with appropriate staff (or defining staff needs).

IV. Developing policies and procedures for the curriculum management system.

V. Preparing and training key personnel.

VI. Installing the system model.

VII. Piloting the model.

With the planning of the system complete, and the organizing and staffing developed, the next consideration is that of implementing the system. Once the decision to implement the system has been made, the following activities must be considered:

I. Activating input procedures for the model.

II. Prioritizing needs and proceeding as described.

Crucial to the implementation of the system is effective staffing and staff development, as discussed under organizing. A well-prepared and organized staff will effectively ensure successful implementation of the system. Of at least equal if not greater importance to successful implementation is the need for support from the State Director of Vocational Education. Without the Director's decision to implement and support implementing a curriculum management system is an impossibility. In addition, the decision makers and curriculum staff must be aware of the people within the organization who hold leadership positions (opinion leaders as well as titled leaders) and must gain the support of those key people who are critical to the acceptance of the system.

Once the system has been implemented, there must be a process for guiding and maintaining the system along the planned path. In management terms, this is accomplished through the functions of controlling and evaluating. The process, therefore, is one of monitoring the system for discrepancies which exist between what is happening and what was planned and, as a result of the identified discrepancies, making the necessary changes to bring the system back to the appropriate course.

At this point, the management basis for the model CMS has been explained. To fully activate the system the what, when, how and by whom must be identified. The task distribution chart on the following pages serves this function. It is designed to identify what needs to be done (the task), how it is to be done, and who has the responsibility for accomplishing the task.

TASK DISTRIBUTION CHART

WHAT	HOW	WHO
1. Develop policies and procedures. (Duties of the council, procedures for conducting meetings, and criteria for making decisions).	Through open discussion by council members, establish rules of order, procedure, and criteria.	Executive Council
2. Determine overall goals and objectives of CMS.	Determine what is expected of the CMS and state in the form of goals and objectives. Example: Goal: To promote the development of quality vocational material needs for all the approved vocational programs in Georgia. Objectives: (1) Provide a valid means of determining the legitimate curriculum material needs of each vocational instructional area. (Needs assessment) (2) Provide a curriculum coordinating unit to: (a) develop instruments, conduct needs assessments, and interpret data. (b) develop basic guidelines for curriculum materials development. (c) develop field testing procedures in consultation with instructional area supervisors, curriculum specialists and/or curriculum developers. (d) analyze field test data (gain scores, item analysis, etc.) (3) Provide a diffusion/dissemination system that ensures statewide distribution.	Executive Council
3 Develop policies and procedures (duties of the committee, procedures for conducting meetings, and criteria for making decisions. Based on policies and guidelines developed by the executive council).	Through open discussion by committee members establish rules of order.	Curriculum Coordinating Committee

	WHAT	HOW	WHO
4.	Determine overall goals and objectives of the specific instructional area based on the goals and objectives established by the executive council.	Determine the role of the committee in the CMS. State in the form of goals and objectives.	Executive Council
5.	Determine funding sources and available funds.	One of the responsibilities of the curriculum staff is to locate fiscal resources. The curriculum staff should be assisted in this by service area supervisors as well as other related units or groups. Every group, unit, and individual involved in the developmental process should be alert to any possibility of acquiring developmental funds.	Curriculum Staff
6.	Determine the importance of each course.	Collect and analyze data relative to student enrollment in each course, job opportunities, funding category, average salary, for the occupation(s), etc.	Curriculum Coordinating Committee
7.	Conduct needs assessment.	A. Develop instruments. B. Provide Guidelines for conducting assessments. C. Analyze data.	Curriculum Staff
8.	Develop short range (one year) and long range (five year) plans.	A. Develop long range and short range plans based on needs assessments and course importance. B. Revise long range plans each year based on accomplishments of previous year and latest needs and manpower data.	Curriculum Coordinating Committee
			Curriculum Staff should develop the review instrument and provide information and resources for the collection of materials.

	WHAT	HOW	WHO
9.	Review alternative solutions and select most appropriate solution.	A. Develop review instrument. B. Collect published material (state and national). C. Review materials. D. Select appropriate solution a. Revise b. Adopt/adapt c. Develop	Curriculum Coordinating Committee Curriculum Staff should develop the review instrument and provide information and resources for the collection of materials.
10.	Approve evaluation procedures.	The evaluation unit should develop basic evaluation procedures in consultation with curriculum specialists, instructional area supervisors, developers, and teacher educators for the following evaluations: (1) Planning evaluation (2) Developmental evaluation (3) Total system evaluation	Executive Council

(A comprehensive evaluation system is a necessity for the development and efficient operation of any system. Without periodic alignment the system, like an automobile, will tend to drift away from the desired path.)

11.	Develop RFP's for curriculum development and research.	Use review criteria to develop RFP.	Curriculum Staff
12.	Approve basic specifications for RFP's.	Review specifications.	Curriculum Coordinating Council
13.	Allocate fiscal resources.	A major problem with any operation is financing. There is never enough money. To ensure equitable distribution of limited resources among competing agencies, the council would be the appropriate body to allocate the developmental resources.	Executive Council

WHAT	HOW	WHO
14. Administer dispersal of allocated funds.	Handle administrative details for the disbursement of allocated funds. A. Set schedules for disbursement. B. Handle expenditure reports (quarterly) for approved funds. C. Maintain files for cost analyses. D. Approve minor changes in budgets (i. e. transfers from one line item to another).	Curriculum Coordinating Committee
15. Develop curriculum materials.	Specific developmental procedures determined by developer based on RFP specifications.	Curriculum Staff
16. Develop field test procedures.	A. Determine criteria. B. Develop data collection instruments. C. Develop criteria for site selection. D. Develop procedures.	Curriculum Staff
17. Coordinate all developmental activities.	A. Receive progress reports from developers. B. Compile reports for the executive council (quarterly and final). C. Disseminate information to appropriate persons, groups or agencies. D. Consult with developer as needed to maintain control and resolve problems.	Curriculum Coordinating Committee
18. Develop diffusion and dissemination procedures.	A. Provide an opportunity for all teachers to review the materials and discuss them with field test teachers through meetings either state-wide or regional. B. Survey the teachers to determine who is interested in using the new materials. C. Provide inservice training to interested teachers (offer credit for recertification in regional or state-wide workshops D. Set up production schedules and distribution procedures.	Curriculum Staff

WHAT	HOW	WHO
19. Evaluate planning and developmental processes.	Audit procedures and progress A. Set-up report procedures and timelines B. Standardize reports (short and to the point, eliminate excess verbiage) and reporting procedure. C. Collect samples of materials developed. D. Compare activities with procedures and guidelines. E. Compile reports for executive council (council report should be a summary of periodic reports to evaluation specialist and coordinating committee, area supervisors, and area committees).	Curriculum Coordinating Committee
20. Review developmental process.	Review the following and make recommendations relative to changes, continuation, or field testing. A. Rough drafts of materials for clarity and appropriateness. B. Objectives as they relate to content. C. Learning activities planned. D. Criterion referenced tests and performance (skill) tests.	Curriculum Coordinating Committee
21. Conduct field tests.	A. Select sites. B. Train personnel. C. Collect data.	Curriculum Coordinating Committee
22. Assist with field tests.	A. Provide field test criteria (handbook). B. Aid instructional area supervisors and developers in setting up field tests. C. Audit field test procedures. D. Analyze data.	Curriculum Staff
23. Review field test data.	A. Relate test items (criterion and skill) to objectives. B. Review teacher comments. C. Review test results (gain scores, item analysis, discrimination index). D. Check length of modules (average time it takes a student to complete one module.) E. Review evaluation report.	Curriculum Coordinating Committee

	WHAT	HOW	WHO
24.	Recommend for approval, further testing, or discontinuation of project.	In consultation with evaluation specialists, curriculum specialists and/or curriculum developer after a review of the field test data. Recommendations of these persons should be considered in light of the field test data. Use recommendations and field test data as criteria for approval of developed materials. More weight should be put on recommendations except in cases of obviously negative field test data.	Curriculum Coordinating Committee
25.	Review evaluation results	Review the evaluation results and the recommendations of the curriculum coordinating committee. Make recommendations for improvement of system for next cycle (year).	Curriculum Coordinating Committee
26.	Review field use data and make recommendations relative to revisions. (Field use data refers to data collected after the materials have been generally disseminated and used for a year or more).	Randomly survey several teachers not included in the field test regarding their opinions of the material. Also collect student data (pre/post scores, teaching methods used, additional materials introduced).	Curriculum Coordinating Committee Curriculum Staff

Field Testing Procedures

Also of significant interest in the state level CMS handbook is a complete description of the field testing procedures which were used by this project. These basic procedures have been used by the VEMC to field test a number of programs over several years, the most recent being the health-occupations materials for this project. A narrative of the application of this field test model as used by the health occupations staff of this project appears in the health occupations section of this report.

A Field Test Model*

No new vocational curriculum should be disseminated or adopted without accurate information concerning its usability and effectiveness with the target population for which it was designed. "Armchairing" will not tell the curriculum developers whether a curriculum will work. No school system or teacher should blindly accept a new curriculum on the basis of the review of the developer or the testimonial of a reader. Field testing of a new curriculum serves a vital function for both the school and the developer. It gives the developer the opportunity to improve his product and gives him a means to establish evidence of its effectiveness. Hence, the goals of field testing are 1) to improve the curriculum materials being developed, and 2) to establish the degree of effectiveness of the product. Field testing should be a primary concern of all curriculum development projects and an integral part of the CMS.

Field testing is defined as the trial use of the curriculum in the intended school setting with the intended target population in multiple sites, for formative and summative (workability and effectiveness) objectives. The objectives of a field test must be:

1. Attainable within the available time,
2. Attainable within the available budget, and
3. Important to answer for the particular products.

In view of the above facts, a field test will most likely not be conducted in an ideal environment. Those conducting the field test, fortunately, can be aware of the constraints listed above and can conduct the field test within these constraints to obtain useable results.

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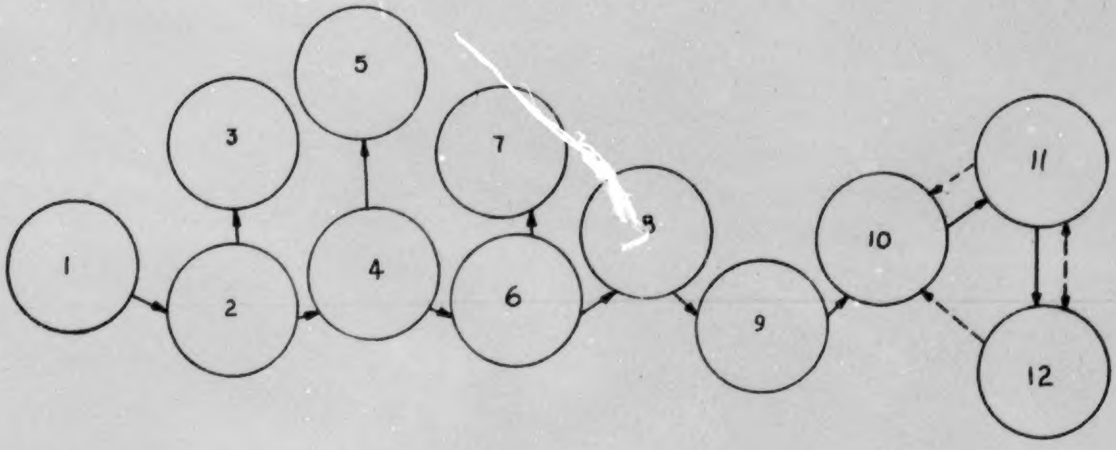
*Based on a model developed for USOE by Contract Research Corporation, 1975.

Conducting A Field Test

Conducting a field test may be viewed as a twelve-step process as illustrated by the following graphic.

(Based on a Field Test Model developed for USOE by Contract Research Corporation)



1. List potential sites.
2. Determine interest.
3. Drop uninterested candidates.
4. Determine site appropriateness.
5. Drop inappropriate sites.
6. Meet with administrators and teachers of appropriate sites to review plans.
7. Drop unwilling sites.
8. Develop agreement with selected sites
9. Train field test personnel
10. Conduct field test.
11. Analyze data and evaluate curriculum materials.
12. Revise for improvement.

The following pages will discuss each of these twelve steps in detail.

1. List Potential Sites. The selection of potential sites is a critical activity. Before any sites are considered, basic criteria for a field test site must be established. The curriculum coordinating unit should perform this function in consultation with service area supervisors, teacher educators, teachers, and developers. Some suggested criteria are: 1) teacher experience and education, 2) cooperative potential of site personnel (supervisor and teacher), 3) adequacy of the facilities, and 4) overall condition of the local program (excellent, good, poor). Once the criteria have been established and validated, they should become standard criteria for the selection of all potential field test sites, and be incorporated in a field test handbook. The established criteria should then be used to develop lists of potential sites. Teacher educators and service area supervisors should develop the list of potential sites. All potential sites selected at this time should be considered to be acceptable as a field test site, based on the established criteria for site selection.

2. Determine Interest. Contact the pertinent personnel at each potential site by letter. The letter should list the course to be field tested, the basic field test procedures, and an approximate date they will be contacted (preferably by phone) to ascertain their interest. After contacting each potential field test site by phone, a list of interested personnel may be compiled.

The outline below describes the information exchange which should take place between the developer and the site in order for both parties to be able to decide whether to participate together or disengage. (Contract Research Corporation, 1975)

1. Information About the Developer
   - Nature of the organization and project staff
   - Previous experience

2. Description of the Project

- Funding agency
- Objectives and characteristics of the curriculum
- Target population: grade level, subject class
- Duration of the curriculum

3. Description of the Field Test

- Purpose of the field test
- Types of teachers required
- Advantages to the school of participating
- Number of schools/classes participating (specify other school systems already committed, if any)
- Schedule and duration of field test
- Costs, if any, to participating schools
- Research aspects of the pilot or field test
- Responsibilities of the developer
- Responsibilities of site personnel

4. Information about the School System

- Course offerings relevant to pilot or field test
- Teacher backgrounds and other personnel necessary for pilot or field test
- Student enrollment
- Program characteristics (e.g., cooperative programs) relevant to pilot or field testing
- Enrollment procedures
- Community relationships, if relevant

5. Information about Site's Ability to Meet Field Test Requirements

- Availability to staff for training
- Willingness to maintain curriculum logs
- Willingness to score tests
- Availability of student data (policies regarding confidentiality)
- Ability of students to participate in field trips, if required (including ability to pay for transportation; parents' approval, etc.)
- Willingness of teachers to conform to the curriculum plan

3. Drop Uninterested Candidates. Those who are not interested should be dropped from the list of potential field test sites.

4. Determine Site Appropriateness. The service area supervisor(s) and teacher educators should at this time divide the list of interested sites according to state administrative districts or regions and list each

potential site according to appropriateness. Three of the criteria used to develop the initial list should be used to order the lists. They are 1) teacher experience and education, 2) adequacy of the facilities, and 3) overall condition of the local program. All sites not acceptable as field test sites should have been eliminated in the first step.

An advantage of developing lists of potential sites according to districts or regions is to provide each area of the state with a test site or sites. This will assist in the diffusion process by providing other teachers with an opportunity to observe field test sites and/or discuss the potential of the materials with experienced teachers.

5. Drop Inappropriate Sites. Those sites which do not meet the criteria for site appropriateness should be dropped. The decision to drop a site should be made objectively.

6. Meet with administrators and teachers of appropriate sites to review plans. The district or regional lists are used to determine the specific sites. Following the order of the lists, meet with administrators and teachers at each selected site. At this time, a detailed plan should be presented for their consideration. The basis for this plan is the curriculum installation procedure. Each step of the field test procedure must be clearly explained, indicating what will be expected of the field test site and what services will be furnished by the developer or field director. If, following the review and discussion of plans, a site is unwilling to participate, the next potential site on the list should be contacted.

7. Drop Unwilling Site. If the terms of the field test procedure are not acceptable to the potential site, the site should be dropped.

8. Develop Written Agreements with Selected Sites. If the terms of the field test procedure are acceptable to the parties, a written agreement should be developed. The written agreement should detail all requirements in clear concise language and should not contain any surprises. The curriculum coordinating unit should develop a standard agreement form, in consultation with developers, and administrators, to be included in a field test handbook. The following is an outline of what may be included in the written agreement (Contract Research Corporation, 1975).

Memorandum of Agreement

Duration of Curriculum: length of curriculum test

Student Selection Procedures: especially when research design requires specific procedures.

Training: the amount of training which the developer would provide to teachers and others, both in the curriculum materials and in instrument use.

Assistance and Monitoring: the amount of technical assistance provided by the developer and its form (e.g., site visitations, mail communications, or telephone conversations) and the availability of site personnel.

Materials: the quantity of curriculum materials, reporting forms, test instruments, etc., furnished by the developer and reproduction requirements of the test site. Party responsible for reproduction of materials should also be indicated.

Data Collection: the data required by the developer, party responsible for its collection, such as demographic information, correction of pre- and post-tests.

In order to accomplish data analysis on schedule, specific dates for accomplishment of data collection tasks and transmittal of data should be specified.

Implementation Plan: the site's schedule and form of curriculum implementation and procedures necessary to modify plan by mutual consent.

Teacher Records: methods for reporting curriculum recommendations.

Reports: the developer and test site's obligations for written or oral progress reports should be specified.

Evaluation: requirements of the developer in reporting out on the field test and reporting back to the site.

Dissemination: developer's responsibility for furnishing test site with revised curriculum materials following completion of field test and revisions.

9. Train Field Test Personnel. The field test personnel must be instructed in the field test procedures. They must be cognizant of the importance of maintaining the integrity of the field test procedure. The field test personnel will need opportunity to review the materials and clarify any concerns. They must clearly understand what data will be collected, why it is important, and what procedures to follow in collecting the data. Data collection forms, such as a teacher evaluation and student evaluation forms, must be reviewed and explained (see attached examples). Do not assume that any form is self-explanatory. Each item on every form must be covered, in detail, during the review. Examples of completed forms should be available to the participants.

10. Conduct the Field Test. If possible, the materials for the field test should be delivered in person and all items should be inventoried with the participant to make sure everything that is needed is available and in good condition. During the time the field test is in progress, the director or supervisor of the field test should be available for consultation with the field test personnel either by phone or through an on-site visit throughout the field test period. On-site visits should be made if the length of the field test is sufficient.

Immediately following the completion of the field test, a follow-up visit should be made to the field test site to collect the data and interview the field test personnel. Valuable information and insights relative to the appropriateness and effectiveness of the curriculum materials can be gained through a personal interview. A follow-up meeting of the field test personnel would also be beneficial to the evaluation of the materials.

What does the field test staff look for during the course of the field test? The following is a guide which suggests a site monitoring procedure (Contract Research Corporation, 1975).

Guide for Site Monitoring

1. Assess General Student Reaction
    a. From discussion with teacher
    b. From class observation
2. Assess General Teacher Performance
3. Observe class and summarize class activities
4. Review and Collect Classroom Log Sheets
5. Review/Collect Results of Pre-Tests (Test and Control Groups)
6. Review/Collect Class Demographic Data, Interim Tests
7. Discuss Level of Difficulty of Curriculum
    a. Discuss problems
    b. Social interaction of slow and advanced student
    c. Methods of dealing with problems
8. Determine Use of Outside Resource Personnel and Field Trips
9. Discuss/Decide Any Modifications to Original Implementation Plan

11. Analyze Data and Evaluate Curriculum Materials. Data collection procedures and methods should be determined before contracting for the development of the materials. The curriculum coordinating unit should develop a computer program to process the data and acquire or design instruments appropriate to computer analysis. Analyses that should be performed by computer are: 1) compare pre- and post-test scores, 2) test for related measures to analyze pre- and post-scores, 3) analysis of reading level, 4) reliability of the test, 5) test items analysis (multiple choice tests), and 6) analysis of the students' evaluation of the materials. Normally, the number of teacher participants will be small, therefore making an analysis of their evaluation of the materials relatively easy to perform by hand, although a computer program could be used to perform this analysis.

The evaluation of the materials is made by comparing the various analyses with predetermined criteria (i.e., an acceptable reading level for the student population). The criteria should be standardized through successful use over a period of time and included in a field test manual. Following the computer analysis, personnel from the curriculum coordinating unit should meet with the developer to review the analysis and determine what, if any, revisions must be made. A decision to revise should be based on the criteria included in the developmental contract and the recommendations of the content specialists. (This illustrates one of the prime advantages for having full time curriculum developers.) Most projects are completed with the termination of the field test and the disbanding of the staff, leaving no one to clear up problems found in the field test exercise.

The primary reason for the field test, in addition to determining if the product works and discovering any errors which exist, is to determine if the product is useable and to what extent. The following table suggests a method for determining usability (Contract Research Corporation, 1975).

Table 3-D.

QUESTIONS OF USABILITY	Scale of Inquiry
I. IS THE PRODUCT USABLE?	One Site
How can the curriculum be improved?	
1. Does a particular curriculum component, strategy or activity work as designed?	
2. Can the total curriculum be implemented in a real classroom setting?	
3. Is the curriculum usable without developer assistance? • Are the instructions clear? • Are the materials available? • Is the reading level appropriate for students?	
4. Can the curriculum or program be installed using normally available resources?	
5. Can a teacher without special training in the content implement the curriculum? • What types of training, support, resource personnel are necessary to implement the curriculum?	
6. Do teachers/students accept the curriculum? • Is interest demonstrated in the content? • Are the instructional methods motivating?	
7. Is the content adequate to meet the objectives?	
8. Are the instructional methods suitable for goals sought?	
II. DIFFERENTIAL USABILITY	
9. Is the product more usable in some situations than in others? • Is the curriculum equally usable in different institutional settings? • Can teachers with different training/backgrounds implement the curriculum equally well?	Several-mini Sites
10. Can variations in the ability to implement the curriculum be related to sites, student, and/or teacher characteristics?	Many Sites

Another very important consideration of the field test is to answer the question, "Do the materials teach?" Tennyson (1976) answers this question by saying,

> The most important question at this point is, "Do the Instructional materials teach?" There is only one way to really test this question, and that is to compare learners who have taken the instruction with those who haven't. There are variations of this control group design and many sources which can illustrate them. The point here is that some form of multiple group comparison is necessary to complete a summative evaluation. The usual design format is:
>
> Group 1 → Pretest → Instructional Materials → Posttest
>
> Group 2 → Pretest → No Instructional Materials → Posttest
>
> The control group receives the pretest and posttest but not the instruction. The instructional materials group receives both the tests and the instruction. At this point group means (average scores of learners) are studied rather than individual scores as in the formative evaluation. Also, the two groups should be samples from the same population. This can be checked by seeing if the pretest mean scores are similar. There should be no basic differences between the two groups on the pretest. However, on the posttest the mean scores should be significantly different. If the group sizes are large enough a statistical test can and perhaps should be done. As mentioned above, different parts of the instructional design can be tested with this multiple group comparison design. Simply leave out of the instructional materials those items that are questionable and test the remaining design variables against the complete materials. The design is:
>
> Group 1 → Pretest → Full Instruction → Posttest
>
> Group 2 → Pretest → Partial Instruction → Posttest
>
> Of course, it is possible to include additional partial groups; only the number of questionable design variables and number of learners limit the number of groups. In summary, at least the first comparison should be done. The others may be conducted if certain design alternatives are being considered.

12. Revise for Improvement. Following a decision to revise, the necessary revisions are outlined and the curriculum staff should proceed to make the changes. A decision to field test a second time will depend on the type and extent of the revisions. The following dicussion serves to clarify the process of curriculum revisions (Contract Research Corporation, 1975).

Revision of the curriculum is likely to be accomplished as an ongoing process in response to teacher recommendations and direct observation by the developer. Revisions directed at clarifying materials, improving in-class instructional strategies, etc., require no statistical evidence or consensus. The reasonable judgment of one teacher or one student may be sufficient basis to modify the curriculum.

Revisions based on evidence of student learning, however, are more difficult to extract from field test results. Item analysis may help to identify weaknesses in the curriculum. Ambiguous evidence, however, complicates the developer's decision. For example, if some classes do well and others do not, a series of judgments must be made about the reasons for different levels of student achievement to determine whether curriculum changes are warranted. In some instances, the quality of implementation may explain differential performance and reduce the importance of the less successful class. On the other hand, the quality of implementation may be related to curriculum characteristics which need improvement. This latter type of information is likely to be obtained through observations of the curriculum in use. Some differences in performance will be explainable by initial differences in student characteristics, including general in-school achievement levels, especially where randomization of the population was not accomplished. A range of explanations, including teacher motivation and interest (which influence quality of implementation), and quality of data (instruments and collection procedures) must be considered.

Meeting the information needs of user audiences brings the developer full circle to the point of origin of the curriculum test: the identification of users and their needs for evidence. The final step in the field test process is thereby completed.

SAMPLE STUDENT EVALUATION FORM

SCHOOL ____________________

STUDENT NAME ____________________

STARTING TIME ____________________ ENDING TIME __________

1. Were the directions in this task in the right order? ___ YES ___ NO

2. Were any steps you needed left out of the directions? ___ YES ___ NO

3. Did you understand each step well enough to do your job right?
___ YES ___ NO

4. Which step(s) did you not understand?

____

____

____

5. Did you think there were too many directions? ___ YES ___ NO

6. Which directions do you think could have been left out?

____

____

____

7. Was there enough narration with each slide so that you understood what was shown? ___ YES ___ NO

IF NO:

7a. Which slides needed more narration?

SLIDE SET NO. ______ SLIDE NO(s) ____________________

8. Are any more slides needed for the narration given? ___ YES ___ NO

IF YES:

8a. Which slide sets needed improvement?

SLIDE SET NO. _____ SLIDE NO(s) ____________________

9. Were there any terms used in the audio visuals that you did not understand?

___YES ___ NO

Please list if yes:

SAMPLE INSTRUCTOR EVALUATION FORM

SCHOOL ________________________________ UNIT NO. ____________

1. List the questions students ask you while doing this unit?

2. List mistakes students made while doing this task.

3. Were the text assignments adequate for the task? ___ YES ___ NO
If not, please list your suggestions for additional assignments.

4. Do the materials presented in this unit cover the theory and practices needed for this task? ___ YES ___ NO

5. Is more information than needed given? ___ YES ___ NO

5a. What material should be deleted?

6. Are the information and procedures used in this unit in agreement with standards accepted in practice today? ___ YES ___ NO

6a. What changes are needed?

7. In your opinion, did the students have to ask you for too much of your assistance to complete the objective? ___YES ___NO

7a. In what areas was your assistance needed?

8. Were there any students who were not able to complete the objective(s) of this unit to your satisfaction?

9. Please make any general comments as to how we may improve this unit.

Procedures/Models

Two significant procedures/models were used by this project: 1) a procedure for training instructors to prepare individualized instruction packages and 2) a model procedure for materials development (curriculum development model).

Teacher Training

The procedure for training instructors to prepare individualized instruction packages is itself individualized and contains manuals, audio-visuals and appropriate supporting resources. A sample unit (HOTE 1.01) appears with the Health Occupations Section.

Teacher/developers were initiated into the project according to a procedure outlined by the following chart.

Activity	Select	Train	Develop	Rewrite	Edit	Test
Assigned to	Staff	Staff	Teachers & Staff	Staff	Staff	Staff & Teachers

Teachers were selected on the basis of the following criteria:

1) **demonstrated** expertise in the related subject area
2) **a demonstrated** interest in and commitment to individualized instruction
3) the amount of time the instructor can devote to the project.

The curriculum development procedure presented here represents a practical application of instructional systems design. This model was developed based on a model used successfully by the Vocational Education Materials Center at The University of Georgia to develop a variety of individualized instructional materials for vocational education over the years. It contains ten basic activities, each of which is based on the preceding activity until the materials are actually implemented and evaluated. The following section will describe this procedure as a subroutine of the curriculum management system.

Synopsis of related theory. The masters of curriculum theory and design tell us that the curriculum for a vocational education program must be developed in four discrete steps.

Step 1: Identify and develop the specific program objectives in detail.

Step 2: Specify the student evaluation procedure for each objective. Answer the question, "How will one know when the student has achieved a given objective?"

Step 3: Determine the appropriate content for each objective. (Essentials only--leave the "nice-to-know" information out.)

Step 4: Determine the best learning activities for the given objective and content. (These steps are based on the work of Ralph Tyler, 1949.)

Two additional factors must always be taken into account when preparing vocational curricula. These are 1) the elimination of sex bias and sex role stereotyping and 2) making provisions for disadvantaged and/or handicapped learners to participate in the curriculum.

The maintenance and development of curriculum materials for classroom/lab operations in vocational education is an ongoing activity. The guidelines in the model described here and illustrated in Figure 6 were developed both to establish materials for new programs and to maintain the existing curriculum over time. It is designed to function as a simple blueprint to aid the CMS staff in implementing a process of curriculum improvement.

Activity One: Establish the Philosophical Basis

The first major activity in any curriculum development or improvement process is to establish a basic philosophy. This statement of beliefs about vocational education will serve as the beacon for decision making throughout the entire curriculum development process.

Activity Two: Set the Missions and Priorities of the Curriculum

This initial step requires the developer to answer the question: "What end products are expected from this curriculum, and what will be the breadth and depth of the curriculum?"

2A. Specify Program Objectives

This subactivity will use the information provided in Activity Two to prepare the program objectives.

Activity Three: Perform the Occupational Analysis

The very best research techniques should be used to identify those tasks that are actually performed in the occupation. As far as possible, this information should come directly from the incumbent workers.

3A: Verify the Tasks

Once the task listing has been completed, it should be verified in the most empirical fashion.

The task listing should now be submitted to the craft advisory committee. It is best to do this in two stages - an introductory stage and a detailed review stage. The time lag between the introductory stage and the review should be sufficient to allow for careful study and analysis of the list. The review stage should be conducted during a special meeting of the craft advisory committee. Maximum attendance is necessary for this session and there should be nothing else on the agenda.

The previous steps will produce a basic task list. All that remains to be done is to relate it more specifically to the local job market and to the role of the entry level worker. A survey can be used for this purpose. (Remember, you will need to select a representative sample of workers in a scientific manner and obtain at least an 80% return from them to have a valid statement of tasks.) In addition to verifying the task list, you will want to ask these workers some specific questions. Use the following examples as guides.

a. What percent of your time is spent performing this task?

b. How long have you worked in this occupation?

c. How difficult would you rate this task to perform?

d. How difficult is this task to learn?

Do not ask too many questions. The time the worker has to respond to your survey will be limited. Therefore, it is better to get back the survey form with the basic information you need than not to get one back at all.

3B: Screen Tasks by Missions and Priorities and Other Delimiting Factors

After the survey forms have been returned, the total task list must undergo its final pruning. It is obvious that the school based program cannot cover the entire spectrum of tasks. The following criteria can be used to reduce the list to a manageable size.

a. Is this task performed by the entry level worker?

b. Could this task best be taught on the job?

c. Can the school afford the equipment to teach this task?

d. Is this a critical task that must be mastered by the student before job entry?

The task list must be hashed and rehashed until it is compatible with the school's time constraints and the target population.

Activity Four: Specify Student Objectives

After the task list has been prepared in final form, a performance objective should be written for each task. (In some cases, it will be feasible to combine two or more tasks to produce a single objective.) The term performance objective is used here to mean the demonstration of the specific worker behavior set forth in the task. Contrary to popular belief, there are several acceptable ways to prepare performance objectives. The most common is the three-part style. These parts are the conditions, behavior and standard. (i.e. Using the appropriate tools, you will be able to set the timing of the engine to manufacturer's specifications). Another method allows the use of what amounts to an objective stem (i.e., demonstrate proper bedmaking techniques). The stem represents the action and behavior required. The conditions are embodied in the lessons themselves and the standards are carried by the supporting criterion-referenced tests. This approach is less wordy and much less time-consuming for the instructor while ultimately providing the student with the necessary direction and expectations.

4A: Analyze the Learning Required for Mastery of Each Objective

The objectives have now been prepared for each task to be taught. The next activity is to identify the concepts, knowledge and skills the student must obtain to be able to perform the task and master the objectives. The learning steps should be identified and listed for each objective. These identified learning steps and the learning types will serve as the basis for preparing appropriate student activities for each unit of instruction.

4B: Sequence the Learning Tasks/Objectives

After the list of these discrete learning steps has been developed it must be sequenced to allow for prerequisite learning and to move the student from the simple to the complex.

Activity Five: Prepare Test Items

It is important to determine the mastery level of the vocational student and the only sure means is through an assessment. Assessment is also the only way to identify weaknesses in the student's knowledge and skill development. The concept of criterion-referenced testing is tailor-made to accomplish this purpose.

Criterion-referenced test (CRT) items are directly related to the stated performance objective. They are also designed to measure the performance required to accomplish a particular task. CRTs can and should be prepared to measure the mastery of both cognitive and performance skills. In addition, both validity and reliability can and should be established.

5A: Performance Test Items, Knowledge Test Items, Attitude Scales

Performance Measures

The overall scope of the performance test must be established first. From that framework a complete set of scoring criteria expressed in terms of product and process must be prepared for each criterion-referenced performance test. Check lists can then be made to improve the utility of the test.

Cognitive Measures

In developing cognitive measures, it is recommended that multiple choice, open-ended, short answers and matching items be used. True-false items have no place in a vocational learning package. Overall, the multiple choice test item is the best prospect for measuring cognitive knowledge in vocational education.

Attitude

The development and measuring of attitudes is an important aspect of vocational education. Rating scales and check sheets should be prepared for this purpose.

Activity Six: Select Appropriate Curriculum Content

To properly execute Activity Six, the objective and discrete learning steps that were prepared in Activity Four must be used. These objectives and learning steps must be valid in terms of the worker tasks selected for the occupational program. Use these validated objectives and discrete learning steps with the activities described here to identify and organize potential student learning materials for the program.

The project staff should develop a coding system by using a prefix for each phase of the program. For example, Duty 1 in the electro-mechanical cluster might be Basic Electricity. BE could become the prefix for all units in that duty area. The first objective for duty BE would be numbered as objective 1.0, and each learning step for that objective would be numbered as a decimal. For example, learning step one would be 1.1, two would be 1.2, etc. The total code for objective one, learning step one of the basic electricity duty in electro-mechanics would be BE 1.1.

6A: Search for Existing Material

The project staff should collect as many resource materials as can be found. The following sequential steps will lead to an abundant collection of materials:

1. Contact teacher educators in Division of Vocational Education.
2. Contact appropriate State Supervisor in SDE.
3. Contact commercial publishing companies.
4. Contact manufacturing companies and labor unions.
5. Conduct searches through ERIC, ARM/AIM, and the National Curriculum Network. The state supervisor can assist in the use of these processes.
6. As each item is received, it must be coded according to the appropriate objective or objectives. In addition, it should also be noted if the materials are copyrighted. If they are, a large C should be placed on the front cover of the document.
7. After the materials are coded, they should be entered into a log. This log is a simple tab sheet to help keep track of the various materials received.
8. Does this product alone or in combination with other resources represent comprehensive coverage of the objective? In the event that a product partially covers an objective to the satisfaction of the developers, it can be used on one of two ways. If the materials are in the public domain, the developer can use a cut and paste approach to get the materials into the correct learning package. However, if it is copyrighted material, it should be placed in the resource area and referenced to it by code.

6B: Screen Materials from Other Sources

The suitability of the available materials should be determined by the project staff. By this stage, a large quantity of materials will have been collected and coded. The potential value of the materials to the program will vary. The curriculum staff must now determine which materials will be adopted, adapted or rejected. Some items can be used as they are. Parts of others can be used and some can be revised to fit the program. The following suggested criteria can be used for this purpose.

1. Identifying content appropriate to the objective
2. Developing learning activities from the content (This is carried out in Activity Seven)
3. Preparing the test items
4. Supporting the learner with instructional sheets and other media when necessary

Activity Seven: Select Learning Activities

Learning activities must be selected for their capacity to transmit appropriate information and skills to the students in a meaningful fashion. They must be a "fit" for both the style and nature of the content. For example, if the students are to learn to do something--perform a specific task, then a hands-on learning activity would be most appropriate. Likewise, there is a proper time to use printed, audio-visual materials, etc.

7A: Determine Primary Delivery System

For the sake of this presentation the potential number of primary delivery systems (i.e., those major methods for establishing the overall instructional plan for a vocational education program) will be limited to four: the cluster, single skills, cooperative, and the core curriculum. This basic choice will have an impact on the kinds of learning activities selected for the curriculum. For example, there is little need for in-school hands-on experiences in a cooperative program.

7B: Determine Instructional Methods

A common decision here is whether to use individualized or traditional instruction. Current student needs and, to some extent, teacher preferences enter here. However, this decision will affect the learning activities at this point and later the packaging of the materials.

7C: Package Materials

When all missing parts and materials have been prepared, the materials may be packaged. Packages can be designed for use in groups or in an individualized instruction format.

It is recommended for vocational curricula that a package be used that lends itself to the individualized approach. Even though group instruction may be the primary mode, an occasional student, either for remedial or accelerated purposes, will need to function independently of the class. The following package outline will provide this flexibility.

1. State the measurable objective.
2. Provide some pre-check items.
3. Provide student activities with options when feasible.
4. Provide self-checks.
5. List all resource materials.
6. Provide post check items, both cognitive and performance.
7. Include the required instructional sheets in the student activities section.

Activity Eight: Evaluate the Materials

The important question now is, "Do the materials produce the desired student behaviors, and can teachers and students use them?" This should be verified, in so far as possible, before the materials are used with the entire student population. This will require three basic steps. First, edit the total set of materials for both grammar and content. Second, perform a face validation of the packages. This would include reviewing the materials to determine if they are well organized, contain the proper content, and are within the ability and reading levels of the target student population. Finally, the units should be tried out to determine that the materials do, in fact, enable the students to master the given objectives, and further ensure that teachers and students can use them.

8A: Face Validation

Face validation requires that materials be examined by a group of content experts to include experts from both industry and the teaching profession.

8B: Pilot Tests

Pilot testing includes the selection of a group of students to go through and use the materials looking for obvious and not-so-obvious flaws such as bottlenecks, sections that are not easily understood, and the like.

8C: Field Test

Once the face validation and pilot test are complete, and successful, one major concern is with the full-scale activity of field testing. Field testing determines the utility of the materials in several different schools; tests for the use of appropriate reading level, learning aids and AV equipment; and validates the materials in terms of student growth or mastery.

8D: Correct Deficits

The data acquired from the face validation, pilot test and field testing can be used to correct deficits in the materials. All revisions and corrections must be made before the materials are distributed in quantity.

Activity Nine: Install the Curriculum

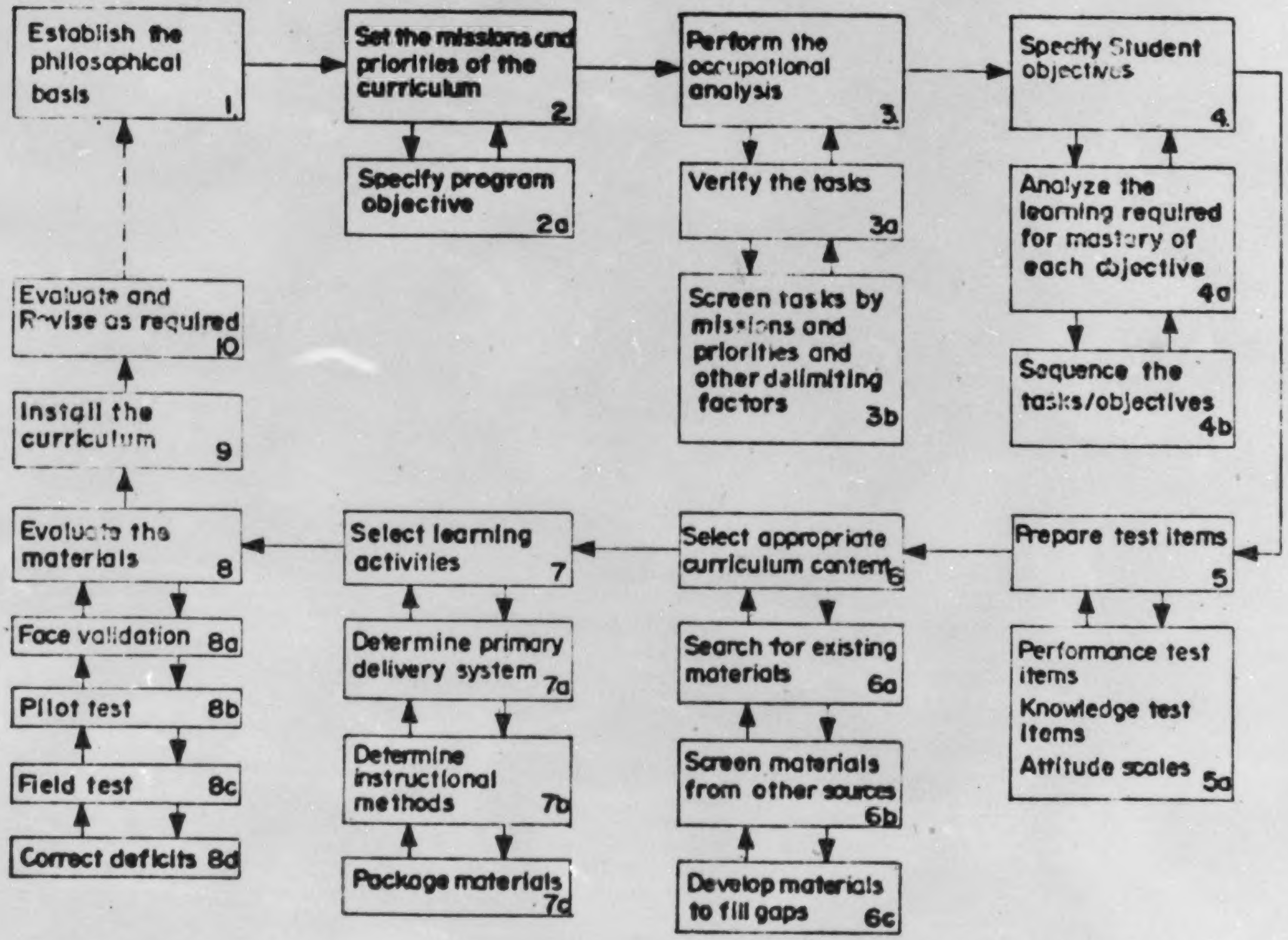
Installing the curriculum requires the same care that was used to develop the system. The following steps should be adhered to when installing the materials in a given vocational program: (1) Prepare the instructor mechanically and conceptually to use the materials. (2) Prepare the physical facilities to support individualized instruction. (3) Obtain the materials and special equipment and supplies. (4) Initiate the system. (5) Monitor and continue to evaluate the program (Scott, 1979).

Activity Ten: Evaluate and Revise as Required

Curriculum evaluation is a continuous process. However, at no time is it as important as after the installation of a new curriculum. Evaluation should include, but is not limited to, the items enumerated below.

1. Determine those learning activities that present unnecessary problems to the students.
2. Note special problems that involve the materials and identify all of their shortcomings.
3. Provide for the formal assessment of the students. Cognitive and performance tests that are criterion referenced will help pinpoint those materials and learner activities that are not producing.
4. Perform a curriculum oriented follow-up of students who have completed the new curriculum. Also, seek information from a sample of their employers.

A MODEL
CURRICULUM DEVELOPMENT PROCESS


Establish the philosophical basis 1.
Set the missions and priorities of the curriculum 2.
Specify program objective 2a
Perform the occupational analysis 3.
Verify the tasks 3a
Screen tasks by missions and priorities and other delimiting factors 3b
Specify Student objectives 4.
Analyze the learning required for mastery of each objective 4a
Sequence the tasks/objectives 4b
Evaluate and Revise as required 10
Install the curriculum 9
Evaluate the materials 8
Face validation 8a
Pilot test 8b
Field test 8c
Correct deficits 8d
Select learning activities 7
Determine primary delivery system 7a
Determine instructional methods 7b
Package materials 7c
Select appropriate curriculum content 6
Search for existing materials 6a
Screen materials from other sources 6b
Develop materials to fill gaps 6c
Prepare test items 5
Performance test items
Knowledge test items
Attitude scales 5a

Vocational Administrator's Handbook

Of significance in the development of the curriculum management handbook for vocational administrators was the development of a task listing for the vocational administrator, in addition to outlines of a method for management of the CMS at the local level. The task listing for the vocational administrator follows. This task listing, in addition to supporting materials, is the basis for the handbook. Each task is described in detail in the handbook. The need for this handbook was indicated by the general necessity for guidelines and procedures at the local level in implementing the CMS.

DUTIES OF THE VOCATIONAL ADMINISTRATOR

DUTY 1

Providing general administration for the vocational program

TASKS:

A. Developing policies and procedures for the vocational education program

B. Developing and maintaining an inventory of tools, supplies and equipment assigned to vocational programs

C. Displaying and maintaining permanent student records

D. Forming and utilizing the general advisory committee

E. Coordinating the job placement program

F. Planning and coordinating special emphasis days

G. Developing procedures for maintenance of the laboratory and general housekeeping

H. Planning and coordinating public relations and student recruitment for the vocational programs

I. Preparing state and local reports

J. Purchasing supplies, materials and equipment

DUTY 2

Providing fiscal and physical planning for the vocational program

TASKS:

A. Scheduling vocational facilities for maximum use by students and teachers

B. Developing the building level budget

C. Preparing short and long range plans

D. Seeking supportive grants for program improvement

E. Assisting teachers with laboratory layout and management

DUTY 3

Performing personnel management functions for the vocational program

TASKS:

A. Appraising teachers performance in relation to instructional goals

B. Encouraging vocational teachers to continue professional growth

C. Employing and orienting new instructors

D. Obtaining and supervising substitute teachers

E. Supervising the instructional process

F. Relating to the school principal, curriculum director, guidance counselor, local director of vocational education, superintendent, state department of education, and the local board of education

G. Planning in-service activities with the vocational staff

H. Preparing instructors to work with craft/advisory committee

DUTY 4

Performing curriculum management functions for the vocational program

TASKS:

A. Designing and developing the vocational curriculum

B. Selecting and organizing the vocational content, training and materials

C. Coordinating human resources for curriculum and instructional purposes

DUTY 5

Implementing and conducting an evaluation system for the vocational program

TASKS:

A. Performing the needs assessment

B. Evaluating the instructional program

C. Evaluating curriculum materials

Classroom/Lab Budget Planning Model

Another significant feature in the vocational administrator's handbook is the development of a classroom/lab budget planning model. The development of this model was based on PPBS (Program Planning and Budgeting System) concepts and is represented by the chart on the next page. This chart is divided into three columns. The left column describes the four inventory items for the educational system (what you have to work with). The center column identifies a basis for developing strategies (organizing to get ready for the classroom/lab budget). The third column is concerned with program costs (both time and money) and procedures for evaluating the components of the system. In addition to a description of the workings of the model, suggested budget forms were developed to assist the administrator in implementing the system.

Classroom/Lab Budgeting

The classroom/lab budget should be built from a series of questions:

1. What is the purpose and objective of the program (i.e. what level of workers do you expect to produce)?
2. What is the current and anticipated enrollment for the class?
3. Will there be any unique costs resulting from enrolling special student populations?
4. What is the anticipated tool loss (replacement cost)?
5. What is the age and functional status of the shop equipment?
6. Are new machines required to meet changing labor market demands or to upgrade obsolete equipment?
7. What will supplies cost?
8. What is the maintenance and operating cost for the classroom lab?
9. What is the cost for instructor and aides (if applicable)?
10. Will any travel cost be involved?
11. What are the sources of cost recovery and direct support for consumable supplies?
12. What revenue may be anticipated from the state department of education, the local school system and from live work.

One method for establishing a functional classroom/lab budget is to rank the above questions in a priority order, then find the most accurate answers available. A vocational administrator must have adequate knowledge to pick the best course of action concerning public school expenditures and allocations. Answering the above questions will establish the basis for classroom level budget which will in turn be used to build the overall school budget.

In the following paragraphs the basic building blocks of a classroom/lab budget is described. It uses the logic of economics to help determine the best methods of identification, analysis, and choosing alternatives. By making use of the learning manager's input from the classroom level the administrator's budget making tests will certainly be eased.

A key element in a classroom/lab budget system is the development of goals and objectives. These are necessary to justify the existence of the system. In order to develop meaningful goals and objectives the classroom manager may wish to consult any of a number of texts on the subject. The simplest procedure, however, is to rely on the goals and objectives prepared for the overall curriculum plan.

The planning process also plays an important role in the classroom/lab budgeting procedure. Planning in this case is simply the method used by the classroom manager to adapt his/her goals, priorities, and resources to changing school and community needs. Defining objectives is the first step in planning and it concludes by suggesting procedures for attaining the objectives in an optimal fashion.

It should be noted that planning goes on all the time. Planning is a dynamic, continuous cycle with built in evaluation. Planning should be viewed as flexible and able to change as requirements for change are discovered by the learning manager.

In a classroom/lab budget the output of all budget activities is the budget document. The budget is based on program results rather than line items in an accounting system. The classroom/lab budget looks at the effectiveness of programs in terms of cost versus resources consumed and objectives met. The educator may then justify a program in layman's terms to any interested group.

These are some of the highlights of the classroom/lab budget cycle:

1. Preparation - at the classroom level
2. Presentation - to supervisor, coordinator, advisory board, etc.
3. Adoption or authorization
4. Administration or execution
5. Appraisal (evaluation)

In many educational institutions the planning portion of curriculum development is the missing or weak link in successful program operation. The classroom/lab budget re-emphasizes efficient program operation as it demands planning and programming to develop curricula. Some schools simply go to the previous year to decide what they need for the coming year. Although that method is functional, using a scientific system such as the classroom/lab budget provides better allocation and an analysis of results is possible.

The main goal of the classroom/lab budget planning system is to simplify and improve data by examining the costs and benefits of alternative ways of attaining classroom lab objectives and providing a method for measuring the output to help improve accomplishment of the chosen goals.

How does the manager of classroom activities determine whether to allocate x dollars to activity A instead of activity B? The classroom/lab budget planning system suggests use of economic analysis. This analysis is based on objective criteria to facilitate the optimal allocation of classroom/lab funds among competing goals within a program. The logic of the classroom/lab budget planning system is simple: "How much am I going to spend?" The answer is found by looking at the utility of the program--"What good is it!"

The following are some distinguishing features of a program budget:

1. Explicit statements of desired outcomes (objectives) are an integral part of the classroom/lab budget.

2. Budget items are organized around major points in the program.

3. Expenditures or operating costs are organized around program elements.

4. Benefits as well as costs are exhibited for major points.

5. There is a multi-year costing framework projecting new classroom/lab resource demands for up to five years.

6. Information is organized to facilitate resource allocation decisions by the classroom manager.

The Model

The chart on page 98 outlines a classroom/lab budget planning model. In order to clarify the model the chart has been divided into three columns. The left column describes the four inventory steps for the educational system (what you have to work with). The center column identifies a basis for developing strategies (organizing to get ready for the classroom/lab budget). The third column is concerned with program costs (both time and money) and procedures for evaluating the components of the system.

Budget Suggestions

1. Calculate potential numbers of students expected to enroll in the future. This can be estimated by considering:
   a. students in cluster programs
   b. students in prerequisite courses
   c. student interest shown during the past year
   d. relative expense of course to students
   e. conduct a student interest survey

2. Complete a course/program needs survey form. Completion of this form may begin in September and continue through this year as needs arise.

3. List needs in order of priority giving attention to those that are absolutely essential, needed or desirable. A likert rating scale may be developed to help in analysis.

4. Calculate cost of needs. Obtain updated cost estimates for supplies and materials. It may be advantageous to submit equipment specifications to manufacturers and ask for exact costs (bids).

5. Complete budget form with expenditure amounts and priorities listed. The focal point in this step is matching budget items with course/program objectives. If an item is necessary to achieve the objectives by all means include it. If it is not necessary some soul searching may be in order.

Figure 21

CLASSROOM/LAB BUDGETING MODEL

Inventory of System Components

- describe student population
- describe basic resources
  - personnel
  - staff support
  - facilities
  - equipment
  - supplies
  - other
- describe community profile
  - socioeconomic
  - demographic
- define management system
  - chain of command
  - decision approval
  - information reporting

Basis for Developing Strategies

- define broad goals
- define operational objectives
- identify classroom/lab activities
- define courses
- define course elements
- develop course structure (group activities)

Time and Money Management

- determine resource requiremen
- determine cost of activities
- estimate cost of program
- establish relationships betw component elements
- determine criteria for effectiveness
- determine measures for effect ness
- identify alternatives
- evaluate alternatives

In order to implement the classroom/lab budget in an expedient manner the following phases have been mapped out:

Phase 1 - Identify and clarify in operational terms the goals and objectives of the program as a whole and for each of its courses.

Phase 2 - Develop a format for the entire program and its courses (Flow Chart).

Phase 3 - Search for alternatives to the objectives of each course.

Phase 4 - Identify the type and magnitude of resources (human, fiscal, spatial, and material) demanded for the pursuit of each feasible alternative for a program objective.

Phase 5 - Analyze each alternative to a course.

Phase 6 - Decide on the alternative and related strategies to be pursued for each course.

Phase 7 - Prepare a budget for resources required based on decision rendered on alternatives.

Phase 8 - Appraise decisions rendered and the program budget prepared at the end of one or more quarters or semesters.

Phase 9 - Recycle to improve and refine the classroom/lab budget plan.

Preparing the Budget

In many school systems before purchasing equipment, materials and supplies for a classroom/lab a budget must be prepared. The budget should be justifiable and realistic in scope. Based on the objectives set for the course or program the budget serves the function of controlling course expenditures. As time passes and needs are further determined, a budget (both for time and funds) may be modified.

Most schools or districts have procedures and forms that facilitate budget making. However, alone these procedures and forms may not be compatible to the classroom/lab budget. The following suggestions and forms take into consideration a budget based on program or course objectives.

BUDGET FORM (current budget)

Program__________

Course__________

Quarter/Year__________

Date	Supply/Material/Equipment	Budgeted	Spent	Balance

Figure 22

BUDGET FORM (work sheet)

Please list below materials, supplies and equipment needed in the classroom/lab. This form may be used as a worksheet to prepare end of year budget proposal and current year budget allocations.

Item needed ____

____

Priority ____

Estimated Cost ____

Actual Cost ____

Justification according to objective ______________________

____

____

Figure 23

BUDGET FORM (proposal)

Budget Summary

Using notes and work sheets from the present fiscal year propose a budget considering program/course objectives

Expected Revenue ______________

Live Work Revenue ______________

State Allocations ______________

Local Allocations ______________

Student Assessments ______________

Other ______________

TOTAL ______________

Expected Expenditures

Travel ______________

Supplies ______________

Equipment ______________

Reference Books ______________

Instructional Aids ______________

Furniture ______________

Contracted Services ______________

Construction or alteration of facilities ______________

Other ______________

TOTAL ______________

Figure 24

Workforce Data Analysis

Another significant section of the vocational administrator's handbook is concerned with collecting and analyzing workforce information. This section is presented in its entirety on the following pages.

COLLECTING AND ANALYZING WORKFORCE INFORMATION

To plan a successful program in vocational education, the vocational administrator must have the best, most accurate information available. The vocational administrator must be aware of current trends both in the workforce and in education itself. He/she must review and analyze all labor market projections by carefully reviewing the history of similar projections and the set of assumptions upon which these projections were based. Above all the planner must "localize" the data. The supply of graduates and other sources of trainees entering the labor market must be known as well as what happens to them once there. The key concept is continuous planning aided by regularly monitoring the local or service area labor market, thus establishing an in-depth data base for any required changes.

The passage of Public Law 94-482, commonly referred to as the '76 Amendments, with its strong position regarding job placement has re-emphasized the need for program relevance and promoted an interest in the use of manpower (workforce) supply and demand information. Federal legislation over the years has always emphasized a concern for relating vocational education to workforce needs. None, however, has made this point with more force than Public Law 94-482.

Since vocational education is currently operated and funded by the above mentioned law, it is, therefore, not only morally but now legally required to plan and operate programs based on real manpower data. Since vocational education represents the student's direct linkage to the world of work, it is imperative that those vested with the responsibility for developing and operating programs of vocational education plan these programs in the most realistic manner, very much taking into account future employment opportunities, manpower needs, and trends. But, as educators they cannot ignore the student's rights to choose or their own obligation to operate educational programs as opposed to simplistic, tentative training programs.

Vocational education decision makers must search for effective and efficient means with which to meet the needs of all people who can benefit from vocational education. They must constantly be alert to keep their curricula in harmony with changing business and industrial conditions, technological changes, and the requirements of a labor market. These vocational administrators move to satisfy a growing demand for educational accountability and to be effective in the competition for the scarce training/education dollars. Such an environment requires them to satisfy two clients, their students and their local labor market. To accomplish this a program-curricula-labor market connection must be established without sacrificing the democratic right of personal choice or converting educational programs into training programs that float in and out with the economic tides of the labor market.

There are three ways in which the relationship between vocational education and manpower demand can be viewed. First, if the vocational administrator supports the whole concept of career education, then there is no need to be concerned about the future manpower demands. Instead, we will just educate the youngsters. This approach is consistent with the model currently in use and one that has been practiced for some time.

The second approach, and a highly distasteful one in a democratic society, is to develop a totally planned ecomomy, one in which the young people would be matched to jobs within the framework of a very carefully controlled economic system.

The third approach is to allow the market to function as it does now, but to design systems whereby potential market/manpower demand bottlenecks can be anticipated and eliminated through efforts of the educational system. This kind of approach would place an important emphasis on manpower forecasting. Manpower forecasting, used with discretion and care, appears to be a functional, democratic approach that can be used within the present American free enterprise system.

The State of Nebraska used a number of sources to identify manpower needs. First and foremost among these was the Internal Revenue Service. From the Internal Revenue Service they were able to identify all firms employing one or more persons, domestic help, and farmers and ranchers employing hired labor. They also contacted the Employment Security Division of the State Department of Labor. From that source, they were able to identify out-of-state firms with in-state locations and federal-state-local tax exempt agencies. And finally they contacted their state tax commissioner who operated the state business master file. Oklahoma used the State Employment Security Commission and the Governor's Comprehensive Manpower Planning staff as their sources of labor demand information.

Those sources when used in combination with local sources will provide the vocational administrator with ample data for the demand phase of the problem. The supply phase is another matter. People trickle into the labor force from a variety of sources. To solve this problem, Pennsylvania went about the identification of every training agency in that state which had the potential to produce occupationally trained individuals. In so doing, they compiled a basic list of sources of supply information. The following are given as their primary sources.

1. Public secondary vocational-technical schools
2. State trade and technical schools (post-secondary)
3. Community colleges
4. Private business schools
5. Private junior colleges
6. Associate degree programs in four-year colleges
7. Dropouts from high school programs
8. Military returnees
9. CETA programs
10. State retraining programs

How then does the vocational administrator develop a data base sufficient to provide for local manpower projections based on clearly defined sources of supply and demand. There are three basic routes the local vocational administrator may take to identify manpower needs. The first, consultation with an advisory committee, may provide the beginnings of a political base as well as good practical knowledge. Further information concerning the important curriculum advising role of advisory committees may be found on page 134. The second source of information, a community survey, is the method most commonly employed by local school officials. The third method, an analysis of data from secondary sources, may be carried out with a review of professional literature, U.S. Labor Department statistics, information from state employment agencies, state department of education's office of vocational education, the Internal Revenue Service and others.

Primary data obtained directly from local advisory committees and local employers is, unfortunately, not always accurate. Data may at times become the victim of a degree of "trade bias." Therefore, local information must be tempered with the addition of national, region, and state data.

The specific questions that may be answered through data analysis may be broken into two phases:

Phase One - Program Need

1. Is there enough need for a program to justify it?
2. Will jobs be available for those who satisfactorily complete a training program?
3. Will the job market for a particular occupation continue in the forseeable future?

Phase Two - Validity of Content

1. To what skill level must workers be trained to fill the kinds of jobs available? (The answer to this question must also come from a task analysis.)
2. Are the schools providing the labor market with adequately trained employment candidates.

The term "supply" is used here to indicate those people who have prepared or are preparing for a particular occupation.

To further develop this aspect of the supply demand effort, the population should be viewed in terms of those at the pre-education level, those in education, those employed at the level of underemployment, those unavailable for employment, the birth rates, and the rate of immigration into the region. The model in Figure 27 graphically displays the dynamics of these supply-demand components in producing workforce projections.

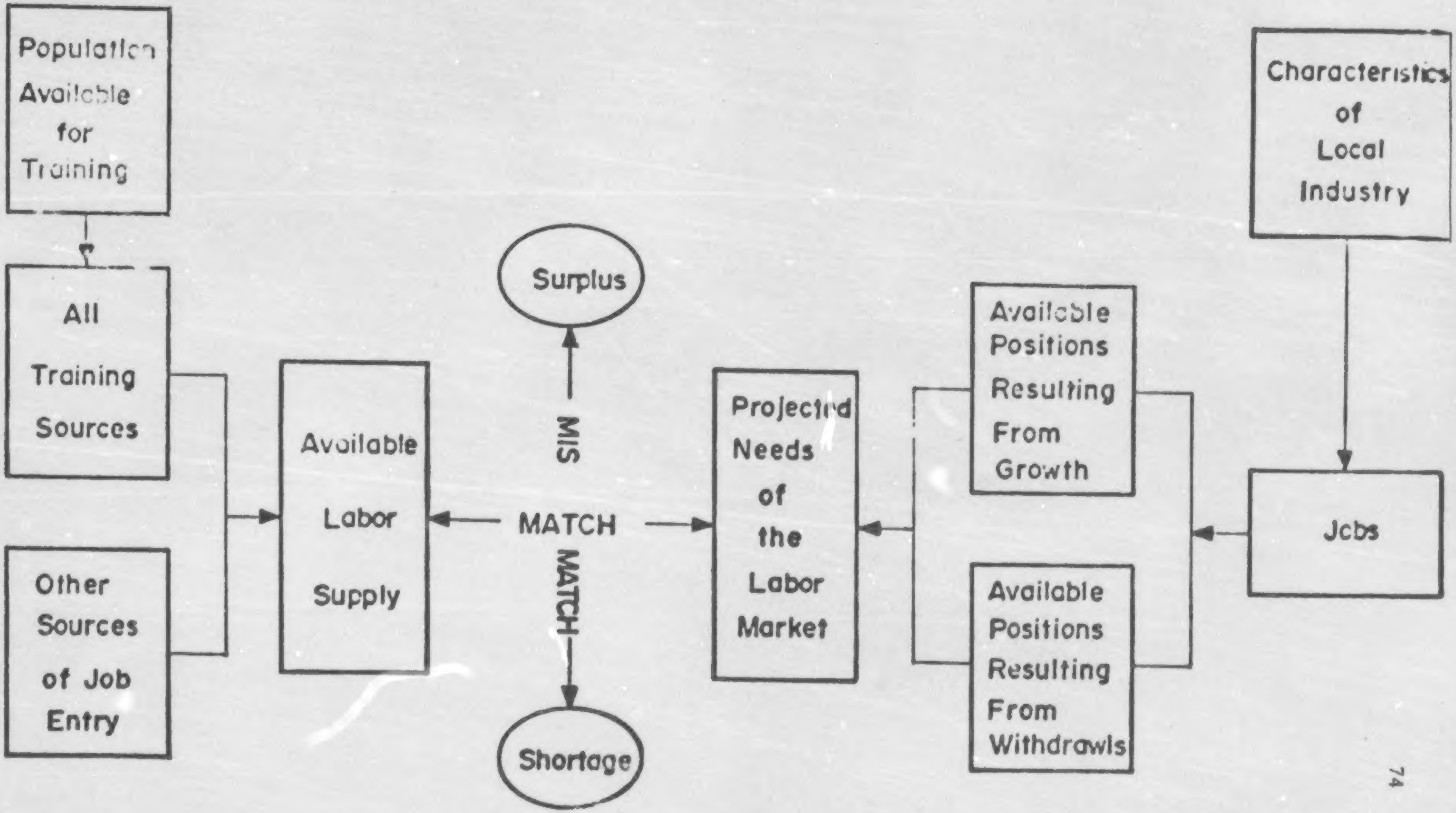
The degree of thoroughness and the method selected for manpower analysis will depend largely upon the objectives set by and constraints (time, money, and manpower) imposed on the vocational administrator. Perhaps the best method for obtaining this imperative data would be an equilibrium approach, a combination of the best information from local sources, the community survey and advisory committee, and the more difficult compilation of data from secondary sources.

Community Survey

A community survey should be a comprehensive study of the employment climate of a community. With certain limitations it will supply information concerning current manpower needs as well as future labor requirements for certain occupations. A survey of community needs is an important factor in developing a well-balanced and accountable vocational curriculum.

A viable, growing vocational program will have a statement of goals (a mission or a purpose). These goals may be used as a basis for future planning. The community survey provides, through the planning process, a basis for curriculum decisions. The decisions include (1) the addition of new curricula, (2) the elimination of curricula due to irrelevancy and, (3) the revision of curricula due to technological

WORKFORCE SUPPLY-DEMAND RELATIONSHIPS



Population Available for Training

All Training Sources

Other Sources of Job Entry

Available Labor Supply

Surplus

MIS

MATCH

MATCH

Shortage

Projected Needs of the Labor Market

Available Positions Resulting From Growth

Available Positions Resulting From Withdrawls

Characteristics of Local Industry

Jobs

Figure 27
C. Paul Scott
University of Georgia
1978

advances of social change.

The survey instrument, which will be described later, will provide the vocational administrator with a plethora of information. The most difficult job he/she faces is determining how it will be used. Vocational education prepares people for working in a constantly changing world. Vocational curricula based on valid, reliable data benefit business, industry and, students--those enrolled now and those who will enroll in the future.

A successful community survey, like any other successful endeavor, requires much planning. Outlined below are suggested steps that may be followed by the vocational administrator conducting a community needs survey.

(1) Organize a committee. This is a vital step because these are the people who will be carrying out the project. The committee may consist of:

(a) the vocational administrator and the department heads;

(b) representatives from each craft advisory council;

(c) the general advisory council; or,

(d) a combination of the above plus classroom/lab managers.

(2) Call the first meeting. The first order of business should be to select/elect one person to direct the study. This project director will normally be a school employee (the administrator) unless an advisory council member has special expertise in this area. The project director must also be responsible for writing up the results.

(3) The next order of business will be to establish a plan of action. This plan should clarify goals and objectives, assign individual duties and set potential target dates.

(4) Prepare a list of appropriate businesses to be surveyed. Special attention should be given to those areas outside the city or county boundaries. Community, in its broadest sense, includes any area in which graduates of the school find themselves after they leave school and enter

full time employment. Sources for the list will include telephone directories, city directories, chambers of commerce data, membership lists of retail or manufacturing associations and existing studies and research.

(5) The committee must determine what technique they will use to obtain data. Alternatives are limited to telephone, mail or personal interview. Distribution by mail is the simplest and most economical method of data gathering; however, much may be said in favor of personal contact.

(6) Design the instrument to be used for data gathering (more discussion on this vital aspect will come later).

(7) Reconvene the committee to examine the instrument. Consideration should be given at this point to final tabulation. Consultation with Electronic Data Processing tabulators may be necessary to insure compatibility The committee should also be in a position to set a final completion date. After adequate examination by the steering committee and consultants as they are available, the instrument should be finalized.

(8) Pilot test the instrument. This can be an optional step depending on time and money available and accuracy of results needed. If a formal pilot test is not performed, the vocational administrator should at least have a "dry run' with a few uninvolved parties. This will ensure clarity of questions and directions, It is very important for questions to be clear so that proper information may be given. Equally important, the instructions must be clear so respondents will know how to provide information.

(9) In step five the committee decided on a procedural technique. For step nine, a review of procedures should be made and necessary modifications inserted. With proper planning, the survey may be formally conducted.

(10) This is an optional but usually rewarding step. A concerted attempt should be made to publicize the survey. This pre-activity public relations

effort will pay off with increased survey returns. It will also let the community as a whole know that they are involved in curriculum development.

(11) As is normal in most mailed surveys a follow-up for non-returns may be necessary. The follow-up would best be implemented with a tactfully written letter using phrases like "lost in the mail," "not enough time in your busy schedule," or "perhaps you mislaid." Be sure to include another questionnaire, just in case.

(12) When returns are in, tabulate the data, analyze the findings and report the results. Often with a community survey, the objective data must be looked at with some subjectivity. The final report must take into consideration factors such as (a) economic fluctuations, (b) probable migration of students and, (c) students who enroll but never complete the entire program.

Developing a successful and effective questionnaire requires careful thought and consideration. A key point in designing the instrument is to determine exactly what information is needed. The following are some suggestions to be reflected upon in the process of development:

1. Keep the instrument brief and simple.
2. Make sure the questions are crystal clear as to what information is desired.
3. Whenever possible use multiple choice questions. They are easier for the respondent and the tabulator.
4. Ask the following questions as they apply:

   -Total number of employees; part-time and full-time?
   -Number of replacements needed annually?
   -Perceived reasons for shortages of qualified potential employees?
   -Starting and maximum wage?
   -Working hours per week?
   -Qualification of typical incumbent worker (education, experience, and training).
   -Typical advancement route?
   -Are the schools (is the school) providing the labor market with adequately trained employment candidates? Indicate areas lacking experience, general education, specific training and, special competencies
   -Are there current part time jobs available for cooperative education students?

The instrument upon completion should be sent to people who employ workers in the occupation in question. It should also be sent to those same types of people in adjacent communities. For a questionnaire to be effective it must be accepted by the respondent. A cover letter, from the superintendent, advisory board chairman or other respected official giving the purpose of the survey will greatly augment its acceptance.

Data from Secondary Sources

Information obtained via a community survey is always a good first step in an analysis of manpower needs. However, the vocational administrator must be concerned with the accuracy and adequacy of local supply and demand information. A reasonable question to ask is--"are the employers doing the planning necessary to project their needs with any degree of accuracy?"

To facilitate the decision making process, information from secondary sources may be used as a supplement. Described next are several secondary manpower information sources.

I. Econometric Studies. These are made by governmental agencies such as the Bureau of Labor Statistics of the U.S. Department of Labor. Their studies yield a ten year demand analysis based on projections of population, labor force, productivity, consumption and, overall output. In addition to the national studies, most state labor departments compile similar data on a regional as well as state-wide basis. Examples of the types of printed information are (1) directories of labor market information; (2) detailed industry and occupation estimates and projections for regions and states: included here would be (a) total employment by industry, (b) employment change by industry, (c) total employment by occupation (d) employment change by occupation and (e) average annual job openings; (3) occupational employment in state non-manufacturing industries (usually with five year projections); and (4) occupational staffing patterns in selected regulated industries (usually with five year projections).

The above studies are very sophisticated and more dependable than employer surveys. Similar studies could not be feasibly undertaken by the vocational administrator due to time requirements, expense and the complexity of research techniques. These are usually free of charge from the local offices of the U. S. or State Labor Department.

II. Job Vacancy Studies. This study adds input from local sources to the econometric model. It depends primarily on the state employment service for information. A listing is compiled of local jobs that have remained unfilled over a period of time. These are then compared with the national trends and a priority listing is made.

A job vacancy study may be completed by the vocational administrator or curriculum developer and up-to-date results obtained. It has other advantages such as an analysis of the probabilities of persistant shortages and the potential for cost benefit analysis of training students for work in a particular field. The problem with a job vacancy study is that it deals only with the present, and not future needs or future growth.

III. Extrapolation of Trend Surveys. The researcher in this case must collect as much data as possible on past employment trends. This information concerning employment may be graphed, inserted into a formula or programmed on a computer to make a scientific judgement as to future trends.

This method may also be used to augment the community survey or other [illegible] needs assessment sources. Relatively speaking it is also quick, easy and inexpensive. The major problem with an extrapolation method is its reliability. Because of the economic and technological changes which occur every day, any far reaching predictions made with this method should be questioned.

IV. Literature Surveys. A literature survey will be of great assistance in keeping up with those "economic and technological" changes which occur in the world of work. Much information is available in professional journals and also in newspapers distributed locally and state wide. Here is a sample listing of periodical literature.

Voc-Ed
The Agricultural Education Magazine
Training in Business and Industry
Accounting Digest
Advertising Age
Business Week
Changing Times
Computer and Automation
Consumer Report
School Shop
Industrial Arts and Vocational Education Journal
Journal of Business
Journal of Retailing
Fortune
Sales Management
Nation's Business
American Journal of Nursing
Nursing Research
Marketing and Communication
Dunn's Review of Modern Industry
Data Processor

Summary

Program success in vocational education is greatly dependent upon relevant curricula. Relevant curricula, in turn, are dependent on valid, reliable data obtained from a manpower needs assessment. The vocational school must constantly strive to remain aware of these needs. It is hoped that the information presented here will be one of the many tools used by the vocational administrator to meet the needs of the student and the community.

Remember to monitor continuously and remain in touch with the job market and be willing to make program adjustments when there is conclusive evidence that this is (considering all factors, including a longitudinal view of the economy) a deadend program.

Don't jump the gun; view emerging occupations first as emerging industries. Many skills and jobs in existing industries will transpose to the so-called emerging occupations with a minimum of adjustment. Boldly rushing into a specific training program for an emerging occupation may be the surest method for creating an oversupply of trained or unneeded workers.

Consider labor markets beyond one's immediate service area. The demand for welders in your location might be weak, but other areas may have a high demand. For the student who is willing to relocate even temporarily, this can become an entry point into the labor market.

Remember, workforce suppiy-demand projections must be followed over an extended period of time to acquire the more "realistic picture" of labor market needs. (Chart the fluctuations before using any data. Never use one-time data).

In the final analysis, it is sufficient to say that no data are complete in and of themselves. Certainly all manpower projections, needs and information collected must be considered within the times in which they occur, in the times for which they are projected and within the geographical location for which they have been developed or else adjusted. Nonetheless, this information is probably the best that has ever been available to vocational education and more has been done with it than with any previous data collected. Still in using those data, the vocational administrator must be wary and evolve all planning and projections from such data with some good common sense and the proverbial grain of salt.

Student and Employer Follow-Up

A final important section developed in the vocational administrator's handbook is the section on student and employer follow up. A copy of this section and suggested forms follows.

The case for empirical data upon which curriculum improvement decisions may be made was presented earlier in this section. Advisory councils and community surveys were explored as potential sources for this data. A third data source is information obtained from student and employer follow-ups. Alumni and employer follow-ups are standard practice in most schools. Graduates are generally surveyed in the fall following graduation and again five years later.

An alumni report will answer questions concerning employment status, type of work, location, duties, satisfaction, relationship to training and salary. Another important aspect of this report will be the students' opinions of the school, programs offered and curricula. A major objective will be information on how well the school prepared students for their jobs.

Another essential source of data concerning the students performance on the job is employer surveys. Employer surveys will not only provide supplementary data similar to that received from students, but will also help identify current and potential problem areas.

The forms presented in figures 28 , 29 and 30 were prepared specifically for use in area vocational-technical schools; however, they should be applicable with very slight revisions for use in other post secondary programs as well as secondary programs.

[illegible] 25

FOLLOW-UP OF ALUMNI

School__________________________________Code No._______________
(1-3)

Course__________________________________Code No._______________
(4-9)

Name____________________________________Date__________________

Complete mailing address______________________________________

____

Check (x) Correct Space

10. Did you attend full time or part time? _____Full time _____Part time

11. Did you attend day or night classes? _____Day _____Night

12. Sex _____Male _____Female

13. Did you graduate? _____Yes _____No

14 Number of quarters completed (Circle one.) 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, or mor

15 Are you in Armed Forces? _____Yes _____No

16. Are you employed full time? _____Yes _____No

17. Are you employed part time? _____Yes _____No

18. Are you continuing education full time? _____Yes _____No

__________________________ __________________________________
(Give name of school) (Location, Course)

19. Are you unemployed? _____Yes _____No

20. If unemployed, are you currently seeking employment? _____Yes _____No

21. Is your current job related to the training you received?

_____Yes, the kind of work for which I am trained

_____Yes, related to my area of training

_____No, in a different occupation

22. Length of time in present job:

_____Less than three months

_____More than three but less than six months

_____More than six but less than nine months

_____More than nine but less than twelve months

_____More than one year but less than two

_____More than two years but less than three

_____More than three years but less than four

_____More than four years but less than five

_____More than five years

23. Current weekly salary before deductions

_____Under $60

_____$61 to $80

_____$81 to 100

_____$101 to $120

_____$121 to $140

_____$141 to $160

_____$161 to $180

_____$181 or more

24 How satisfied are you with the job?

_____Very satisfied

_____Well satisfied

_____Satisfied

_____Not quite satisfied

_____Very disatisfied

25. Do the things you learned in school help you on your present job?

_____Yes, the help a lot

_____Yes, they are of some definite help

_____No, they don't help much if at all

26. How many major job changes have you had since graduation (Circle one.)

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, or more

27. I was assisted most in obtaining my first job after leaving school by

_____Someone working for the school

_____Friends or relatives

_____An ad in a newspaper or magazine

_____An employment agency

_____A previous employer of mine

_____Other (Explain____

28. How long after leaving the school did you actually begin work on your first job?

_____There was no wait, I went to work the next day

_____More than one day but less than two weeks

_____At least two weeks but less than 5 weeks

_____Five weeks or more

_____I haven't had a job since leaving the school

29. My first job is (or was)

_____Within by hometown community

_____Not more than 25 miles from my hometown

_____Between 26 and 100 miles of my hometown

_____More than 100 miles from my hometown

30 How many job offers were received before you accepted your first job?

1, 2, 3, 4, 5, 6, 7, 8, 9, or more

31. How would you rate this school?

_____Very good

_____Good

_____Fair

_____Poor

32. Should the school have given more instruction time to

_____Laboratory

_____Theory

_____Neither (Specify): ____

33. To what extent did the school prepare you to work with your supervisors, co-workers, subordinates?

_____Excellent preparation

_____Adequate preparation

_____Some preparation

_____Little preparation

_____No preparation

34. Are you self employed? _____Yes _____No

35. Date last attended this school: __________Month __________Year

36. Title of present job: ____________________________

37. Tasks: ____________________________________

38. Name and address of firm employing you:

____

____

39. If you are unemployed or if you are not employed in the field for which trained or related field, why? ____________________

____

____.

40. When I started to work I was least prepared ______________

____

____.

41. To improve the training in the field I studied I suggest __________

____

____.

42. To help individual students in the school through the admissions, counseling, or job placement programs, I suggest ______________

____

____.

43. To improve the school as a whole I suggest ______________

____.

44. What contact have you had with the school since you left? ________

____.

45. What type of courses would you like to have the school offer for graduates? ______________________________

____

____.

COVER LETTER FOR EMPLOYER FOLLOW-UP

(School Letterhead)

(Company Name)
(Address)

Re: ______________________________
Employee

Dear ______________:

In order to aid both our school and your company, we are requesting that the enclosed employee rating sheet be completed and returned to us at your earliest possible convenience.

We would like to suggest that the form be directed to the employee's immediate supervisor, and that the employee be compared with other employees of similar work experience.

Our school is making a sincere effort to provide business and industry with well trained employees. You will be doing us a great favor by completing the form. Only through evaluation of our graduates by their employers will we be able to do our best job.

Sincerely,

(Name)
Coordinator of Student Personnel
Services

(xxx)

Enclosure

RATING SCALE FOR EMPLOYER FOLLOW-UP

EMPLOYEE RATING SHEET

NAME OF EMPLOYEE ____________________
COMPANY ____________________
JOB TITLE ____________________
DUTIES (Task) ____________________

	Superior 1	Above Average 2 3	Average 4 5 6	Below Average 7 8	Poor 9
Job Understanding					
Job Skill					
Reliability					
Dependability					
Initiative					
Productivity					
Safety Practices					
Housekeeping					
Appearance					
Quality of Work					
Leadership Ability					
Learning Ability					
Adaptability					
Ability to Work With Others					
Overall Potential					
Ability to Follow Instruction					
Observance of Company Policies					
Need for Supervision					
Motivation					
Willingness to Learn					
Pride in Work					
Self Confidence					

COMMENTS:

____

____

____

____

RATED BY:______________________________

TITLE______________DATE_______________

dministrator's Bookshelf

The appendix of the vocational administrator's handbook included a handy section entitled "Administrator's Bookshelf". This is a listing of standard references which the vocational administrator is advised to keep on hand. This list follows

ADMINISTRATORS BOOKSHELF

Books -

Advise for Action. Arizona State Advisory Council on Vocational Education, 1978.

Banathy, B. H. Developing a Systems View of Education. Belmont, California: Fearon Publishers, 1973.

Bartel, C.R. Instructional Analysis and Materials Development. Chicago: American Technical Society, 1976.

Bloom, B S. (Ed.). Taxonomy of Educational Objectives, Handbook I. New York: David McKay Co., 1956.

Krathwohl, D. et al. Taxonomy of Educational Objectives, Handbook II. New York: David McKay Co., 1974.

Brolin, D. E. Vocational Preparation of Retarded Citizens. Columbus, Ohio: Charles E. Merrill Publishing Company, 1976.

Butler, F. C. Instructional Systems Development for Vocational and Technical Training. Englewood Cliffs, New Jersey: Educational Technology Publications, 1972.

Calhoun, C. C. and Finch, A. V. Vocational and Career Education: Concepts and Operations. Belmont, California: Wadsworth Publishing Company, 1976.

Cook, D. L. Educational Project Manager. Columbus, Ohio: Charles E. Merrill Publishing Co., 1971.

Craft Committees: Can they Work? Bath, Maine: Midcoast Educational Development Center, 1977.

Crawford, L. C. and Meyer, W. G. Organization and Administration of Distributive Education. Charles E. Merrill Publishing Company: Columbus, Ohio, 1972.

Cross, A. Home Economics Evaluation, Charles E. Merrill Publishing Company, 1973.

Drumheller, S. I. Handbook of Curriculum Design for Individualized Instruction. Englewood Cliffs, New Jersey: Educational Technology Publications, 1971.

Dunn, J. A. Vocational Education Curriculum Specialist. Modules 1-15. Washington, D.C.: U.S. Government Printing Office, 1976.

Frantz, Jr., N.R. (Ed.) Individualized Instructional Systems for Vocational and Technical Education: A Collection of Readings. Athens, Georgia: Vocational Instructional Systems, 1974.

Friese, J. F. Course Making in Industrial Education. Peoria, Illinois: Charles A. Bennett Co., 1966.

Books Con't:

Fryklund, V. C. Analysis Technique for Instructors. Milwaukee: Bruce Publishing Company, 1956.

Gagne R. M. The Conditions of Learning, New York; Holt, Rinehart and Winston, Inc., 1977.

Gagne, R. M. and Briggs, L. J. Principles of Instructional Design. New York: Holt, Rinehart and Wilson, 1974.

Giachino J. W. and Gallington, R. O. Course Construction in Industrial Arts and Vocational Education. Chicago, Illinois: American Technical Society, 1961.

Gronlund, N. E. Preparing Criterion Referenced Tests for Classroom Instruction. New York, The McMillan Company, 1973.

Hofstrand, R. K. and Phipps, L. J. Advisory Councils for Education: A Handbook. Urbana Illinois: Rurban Educational Development Laboratory, University of Illinois, 1971.

Installing and Operating an Individualized Program. Atlanta, Georgia: Department of Education, Vocational Media Center, 1978.

Johnson, R. B. and Johnson, S. R. Toward Individualized Learning. Reading Massachusetts: Addison - Wesley Publishing Company, 1975.

Kigin, D. J. Teacher Liability in School Shop Accidents. Ann Arbor, Michigan: Prakken Publications, 1963.

Krathwohl, D. et al. Taxonomy of Educational Objectives, Handbook II. New York: David McKay Co., 1974.

Lyden, F. J. and Miller E. G. Planning Programming Budgeting: A Systems Approach to Management. Chicago: Markham Publishing Company, 1967.

Mager, R. F. Developing Attitude Toward Learning, Belmont, California: Fearon Publishers, 1968.

Mager, R. F. and Beach, Jr., K, M, Developing Vocational Instruction, Belmont, California: Fearon Publishers, 1967,

Mager, R. F. Measuring Instructional Intent. Belmont, California: Fearon Publishers, 1973,

Mager, R. F. Preparing Instructional Objectives. Fearon Publishers: Belmont, California, 1962,

Mason, R. E. and Haines, P. G. Cooperative Occupational Education, The Interstate Printers & Publishers: Danville, Illinois, 1965,

McMahon G. G, Curriculum Development in Trade and Industrial & Technical Education, Charles E. Merrill Publishing Company: Columbus, Ohio, 1972,

Books Con't:

Noar, G. Individualized Instruction: Every Child a Winner. New York: John Wiley and Sons, 1972.

Payne, D. The Assessment of Learning: Cognitive and Affective. Lexington, Massachusetts: D.C. Heath and Co., 1974.

Popham W. J. Criterion Referenced Instruction. Belmont, California: Fearon Publishers, 1970.

Popham, W. J. The Uses of Instructional Objectives. Belmont California: Fearon Publishers, 1973.

Program Budget Manual. Oregon Department of Education, Salem Oregon. (n.d.)

Rettig, J. L. Careers: Exploration and Decision. Englewood Cliffs, New Jersey: Prentice-Hall, 1974.

Strong, M. E. (Ed.) Accident Prevention Manual for Training Programs. (Second Edition) American Technical Society: Chicago.

Wall, J. E. (Ed.) Vocational Education for Special Groups, American Vocational Association Sixth Yearbook, 1976.

Weubtraub, F. J., Abeson, A., Ballard, J. and Lavor, M. Public Policy and the Education of Exceptional Children. Reston, Virginia: The Council for Exceptional Children, 1976.

Articles:

American Vocational Journal. The mushrooming vocational curriculum, how to manage it, 1973, 48, Entire issue.

Dupuis, V L. and Bell, P. E. A modular approach to vocational curriculum. American Vocational Journal, 1974, 49, 34-36.

Finch, C.R. Individualizing instruction: What can you learn from research? American Vocational Journal, 1974, 49, 28-29.

Glasser, W. 10 steps to good discipiline, The Education Digest, 48, 6, 2-5.

Hayman, J. J., Jr. The systems approach and education. The Educational Forum, 1974, 38, 493-501.

Lasell, W. L. Product evaluation as a way of thinking. American Vocational Journal, 1974, 49, 25-26.

Sexton, M. J. and Switzer, K. D. The time management ladder. The Education Digest, 1978, 44, 34-35.

Tennyson, R. D. The role of evaluation in instructional development. Educational Technology, 1976, 17-24.

TEACHER'S GUIDES

Teaching guides were developed by this project for the following programs:

1) Transportation
2) Construction
3) Auto-body Repair
4) Machine Shop

Development of these teacher's guides was considered significant in that a three-volume format was developed. This format includes the following information.

Contents of Instructor's Guide - Volume I

1. Purpose of the Curriculum - This part of the instructor's guide explains the ultimate purpose of the curriculum and tells the instructor in broad terms, what skills and knowledge the student should acquire and what occupational standards the student should meet.
2. Description of the Curriculum Design - In this part of the instructor's guide, the instructor is advised as to the nature of the curriculum design, the delivery system employed, and any other information which may help the instructor understand the curriculum design.
3. Differences between traditional and present curriculum - Here the instructor's guide contrasts the more rigid traditional curriculum to the modular, open entry, open exit design of the new curriculum.
4. Program Task Listing - This portion of the instructor's guide explains the task analysis which is listed in Volume II of the instructor's guide.

5. Program Course Listing - Here, the instructor receives an explanation of the task objectives and the task detailing and sequencing. Both of the above mentioned are listed in Volume II of the instructor's guide.
6. Written Materials included in Program - Here the instructor is informed as to the written materials used. Generally, this section of the instructor's guide will list, define, and give an example of (1) unit sheets (2) information sheets, (3) lab sheets, and (4) written checks.
7. Inventory of Materials - In this section, the instructor receives an inventory sheet of all materials which are to be included in a total program. This section will insure that instruction is not attempted with an incomplete package.
8. Textbook and Reference List - As indicated by the title for this section, included is listing of the recommended textbook(s) for the course and a list of references used in preparing materials.
9. Procedures in Setting up the Program - This section includes instruction in all procedures necessary to prepare for the course (Planning).
10. Initiating Students in an Individualized Program - Here the instructor is given information on how to determine by various methods, the point at which a student is to enter the program and the path the student is to follow towards completion of the program. Cluster entry is explained using Maley's model of the cluster.
11. Managing the Instructional Program - This section is primarily concerned with classroom management in an individualized instruction environment.

12. Use of Live Work in the Program - This section describes all procedures for handling laboratory exercises in the program.
13. The evaluation section of Volume I of the instructor's guide includes methods of evaluating the student's total performance. In addition to explaining check points, methods are also described on evaluating the student's performance with respect to the time required to reach the objective, the number of attempts a student makes at satisfying an objective, dependability of the student (attendance, self motivation, use of time) and quality of work (systematic approach to work, good housekeeping habits, conformity to industry standards). The evaluation section also points out any standardized tests necessary to determine vocational competency.
14. Keeping individual student's files provides the instructor with procedures for keeping the files of each of the students enrolled in a particular individualized course relative to the individualized instruction environment.
15. The instructor's guide also contains a section in Volume I which addresses student motivation. Here, the instructor is given advice on methods of motivating students as motivation relates to individualized instruction. Student motivation is greatly enhanced in individualized programs because (1) each student must become an active participant in the program, (2) there is frequent feedback of information to the student, (3) the opportunity for direct personal contact with instructor is greatly improved, (4) student has some choice of occupational goals in individualized program which helps personalize the total experience.

Contents of Instructor's Guide - Volume II

Volume II of the instructor's guide includes three sections as follows:

1. Task analysis - This section includes a complete task listing and analysis identifying the performance required for the occupation around which the curriculum is designed.
2. Task Objectives - This section lists the performance objectives to be achieved by the student to successfully perform the tasks listed in the section under task analysis.
3. Task detailing and sequencing - This section advises the instructor as to the sequence in which the tasks are to be taught, and the detailing of each task, in addition to learning types.

Contents of Instructor's Guide - Volume III

Volume III of the instructor's guide includes instructor check points. This manual serves as a guide to the instructor relating when and how to check the student's progress and against which criteria. Included also are answer keys to all exercises and an explanation relative to the application of each check point.

HEALTH OCCUPATIONS

Final Activities

Initial drafts of 30 instructional units for Health Occupations skills were completed. Five additional Health Occupations Skills units were identified as necessary to complete the secondary cluster curriculum. Instructors on specialized allied health fields were reoriented to write the packages appropriate to their field. The objective of the allied health units is to facilitate student exploration of all health jobs and mastery of job-entry skills.

Theory courses for practical nursing were written according to the requirements of the Georgia State Board of Practical Nursing. The practical nursing student is required to complete 600 classroom hours before the licensure examination is taken and packages have been completed to cover the requirement.

All theory packages were critiqued by at least one instructor located in a school other than that of the teacher-author. Revisions were made according to the critique findings.

Slide-tape programs were developed as aids for the secondary cluster program. A total of twenty-seven programs were developed. A teacher's guide was developed. The two volumes of the guide include: 1) a manual to assist the teacher in initiating and managing an individualized program, and 2) keys for the checkpoints of the lessons.

150 copies of the fifteen student manuals were printed as specified by the curriculum project. These manuals were distributed to 11 schools chosen as sites to conduct a preliminary field test.

This preliminary field test was conducted for a five month period. The sites included six post-secondary schools and five secondary schools.

Because of the secondary schools' calender only two months were left in the year, making a true field test impossible in these schools. The secondary teachers were requested to critique two of the four Health Occupations Skills named and if feasible to have their students complete the lessons in these manuals. The result was that every lesson in these four volumes was critiqued by at least one secondary teacher and tested by at least one secondary student.

The post-secondary practical nursing instructors selected for field testing all the practical nursing curriculum participated in a training workshop. The instructors from five of the sites attended a two-day teacher education workshop to introduce these instructors to the concepts of individualized learning; familiarize them with the curriculum and train the teachers in the field test procedures.

The instructors from the sixth post-secondary site attended only one day of the workshop, and did not participate in teacher education activity of learning the concepts of individualized learning. This site was utilized as a control group to study the effects of the teacher education activity.

Cognitive Evaluation and TABE Compared

Table I presents a comparison between students' performance on the Cognitive Evaluation and their scores on the Test of Adult Basic Education. Column (1) shows the number of students in each of the categories of column (2). Column (2) is a listing of Cognitive Evaluation score categories. Column (3) shows the mean TABE scores of students in each of the categories in column (2).

Inspection of the data in Table I reveals a direct relationship between the Cognitive Evaluation category and mean scores on the TABE for those students who scored 75% or higher on the Cognitive Evaluation. In other words, among those students who made a score of 75% to 100% on the Cognitive Evaluation, those students who scored higher on the Cognitive Evaluation also made higher scores on the TABE, on the average. However, among those students who scored below 75% on the Cognitive Evaluation there is an inverse relationship between Cognitive Evaluation scores and TABE scores. This inverse relationship in the lower range on the Cognitive Evaluation would seem to indicate a motivational problem among some of the more capable students.

Table I

Comparison of Cognitive Evaluation Scores and Mean TABE Scores Among Field Test Students

(1) Pop. (n)	(2) Cog. Eval. (%)	(3) Mean TABE
12	below 70	10.5
21	70 - 74	10.3
32	75 - 79	9.6
45	80 - 84	10.2
54	85 - 89	10.4
57	90 - 94	10.7
63	95 - 100	10.7
284	87.5	10.4

Student Awareness of Performance

Students were asked after they had completed a lesson to predict whether they would make a good grade on the cognitive test. Table 2 compares student predictions with their actual performance.

Table 2

Predicted and Actual Performance

on the Cognitive Evaluation (N=238)

Performance Predicted	Actual Performance Good*	Poor	Total
Good	72.3%	15.1%	87.4%
Poor	4.2%	8.4%	12.6%
Total	76.5%	23.5%	100.0%

*Good performance is defined as 80% or more correct.

Of the 238 students who responded to the question, 87.4% predicted they would make a good grade and 12.6% said they would not. For purposes of analysis of these predictions we established a score of 80% as the criterion for good performance on the Cognitive Evaluation. Using this criterion, a total of 76.5% made a "good" grade on the evaluation, and 23.5% made a "poor" grade. Comparing predictions with actual performance, we can see that 80.7% of the students (72.3% + 8.4%) accurately predicted their performance.

Looking at Table 3 we can see that 33% of the students who predicted poor performance were in error, whereas only 17% of the students who predicted they would do well were wrong. In other words,

Table 3

Student Error Rate:

Predicting Performance

Predicted Performance	Accuracy of Prediction		
	Correct	Incorrect	Total %
Good	83%	17%	100%
Poor	67%	33%	100%

students who predicted they would do well were more often right than students who predicted they would do poorly.

Table 4 shows that students who predicted good performance scored substantially higher on the cognitive evaluation and also show slightly higher academic performance in general as reflected in their mean TABE scores.

Table 4

Mean Cognitive Evaluation and TABE Scores of Students Predicting Good and Poor Test Performance

Predicted Performance	Mean Cog. Eval.	Mean TABE
Good	89.7	10.44
Poor	71.1	10.11

H-O In-Service (1979)

The August State In-Service program for Health Occupations educators was utilized for introducing the teachers to the new curriculum. A copy of the module developed for this purpose is included. In addition to the individualized learning module one morning of the in-service was devoted to writing test items. The teachers worked in pairs writing the items and then joined another pair of teachers to critique the test questions. This provided an opportunity for secondary teachers to work closely with post-secondary teachers and share ideas.

Guest speakers concluded the in-service program by giving talks to the two groups of teachers; the nursing instructors and the allied health instructors. The nursing instructors learned that the pending legislation in many states to dissolve practical nursing education was lead by a small number of registered nurses and suggestions were given to prevent such legislation in Georgia.

Attached is a sample of the H-O In-Service agenda and a copy of a unit from the individualized HO - Teachers Education program. (See Appendix)

Significant Findings and Events

Items to report under this category for the purpose of this report are the same as those items reported under the specification of the products and the section entitled "Major Activities and Accomplishments".

Dissemination Activities

The following dissemination activities resulted from the activities of this project:

1. All products were presented to the Georgia Summer Inservice Program for Vocational Teachers.
2. Health Occupations materials were distributed to Georgia teachers and selected out-of-state personnel.
3. The Vocational Administrators Handbook was distributed to both secondary and post-secondary administrators in Georgia.
4. Presentations will be made to the AVA.
5. The Vocational Administrator's CMS Handbook and Booklet describing the state-level CMS will be distributed to the 50 RCU state directors.
6. The instructor guides have been distributed to appropriate Georgia instructors.
7. The CMS model and handbooks will be sent to ERIC.
8. Seminars were conducted for T & I teacher-educators from four Georgia colleges and universities.

Data Collection

See the first section of this report under the heading "Major Activities and Accomplishments".

Other Activities

None to report for the purpose of this presentation.

CURRICULUM DESIGN RESEARCH NEEDS FOR THE FUTURE

The purpose of this section is to address the issue of research as a future activity in the curriculum design and development of vocational education. This is indeed a most important area. The project staff wishes to make the following recommendations: First, that an organized research effort around the innovative curriculum activities currently under way in vocational education be continued. Second, that further efforts be made to measure the impact of management on the effectiveness of the vocational curriculum planning and development at all levels. Third, much has been discussed in the way of the validation of curriculum materials. However, little has been done outside of doctoral dissertations. There are a very limited number of reports on the specific effectiveness of the various new approaches to delivering the vocational curriculum that have been discussed in the literature. We must be fully aware that the first line of accountability in a vocational education program is that of insuring that the student learns to perform the task and to utilize the knowledge available through the program. This, in effect, must be done by introducing an analysis of learning styles, teaching styles and instructional and curriculum materials that tie the styles together and produce the most profitable learning environment for the student. To date, some work but not a significant amount has been conducted in this area. The project staff wished to further recommend that this field of study become a prominent area for empirical research in the curriculum domain.

Georgia State Department of Education
1979 In-service Conference
Health Occupations Education

Tues. Aug. 7 — Presiding: Mary Elizabeth Milliken

2:00	Instructions regarding SDU credit	
2:15	Individualization of Occupational Programs State Department Perspective Local Education Agency Perspective	 John Lloyd J.D. Powell
4:00	The HOE Curriculum Project	Gene Campbell
3:15	Individualizing the HOE Program The Teachers' Perspective	Panel: Emily Parrott Beverly Cochran Laura Peppers Fannie Pooley Mary Lee

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Wed., Aug. 8 — Presiding: Sheiron Daniels

9:00	Introduction to the Individualized Health Occupations Curriculum	Gene Campbell
11:45	Instructions for afternoon activity	Gene Campbell

P.M.

Secondary HOE, Allied Health, and Dental Auxiliary Teachers

Presiding: Sonja Bowen

2:00-3:00 Relevance of the Individualized Curriculum

Practical Nursing Teachers

Presiding: Gene Campbell

2:00-5:00 Introduction to the Teacher's Guide for Practical Nursing Curriculum

3:00-5:00 Panel: Orienting the Secondary Health Occupations student to allied health and dental careers

Panel Moderator: Barbara Nelms
1. Dental Assisting - Joyce Stone
2. Dental Laboratory Technology - James Nicholson
3. Clinical Laboratory - Sandra Puckett
4. Radiologic Technology - Paula Greene
5. Inhalation Therapy Assistant - Carol Jones
6. Emergency Medical Technology - Marian Wildeboer
7. Medical Office Assisting - Connie Lukus
8. Operating Room Technology - Frances Hood
9. Physical Therapy Assistant - Martha Hughes

Thur., Aug. 9
A.M.

Presiding: Susan Stegall

9:00	The process for developing proficiency tests	Aleene Cross
10:00	Small group activity: Develop a proficiency test Field-test the tests	Helen Crosland

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Fri., Aug. 10

Secondary and Practical Nursing Teachers

Presiding: Susan Tredway
Introduction of Speaker: Nell Hall

Speaker: Sister Mary Walsh
9:00-10:30 "Articulation Between Levels of Nursing Education Programs -- Roles and Responsibilities of the Practical Nursing Instructor"

10:00-10:30 Questions from the floor

Allied Health and Dental Auxiliary Teachers

Presiding: Catherine Binns
Speaker: Robert Waymer
9:00-11:30 "Motivational Techniques for the Teacher"

10:30 Reaction Panel
Moderator: Nell Hall

11:30 Completion of SDU forms — Mary Elizabeth Milliken

FUNCTION HO Teacher Education

TASK Individual Differences in Learning

HO/PNE UNIT HOTE 1.01 **HO/PNE LESSON** ______

OBJECTIVE(S)

Describe individual differences in learning

START ➡ L-1 ▷ W-1 ▷ L-2 ▷ C-1 ▷ W-2 ▷ L-3 ▷ W-3 ▷ L-4 ▷ C-2 ▷

WRITTEN		**AUDIO VISUALS**	
W-1	Information Sheet HOTE 1.01a	**A-1**	
W-2	Information Sheet HOTE 1.01b	**A-2**	
W-3	Information Sheet HOTE 1.01c	**A-3**	
W-4		**A-4**	
W-5		**A-5**	
W-6		**A-6**	
W-7		**A-7**	

LABORATORY		**CHECK POINT**	
L-1	Assignment HOTE 1.01a	**C-1**	Instructor Check
L-2	Assignment HOTE 1.01b	**C-2**	Self Check HOTE 1.01
L-3	Assignment HOTE 1.01c	**C-3**	
L-4	Assignment HOTE 1.01d	**C-4**	
L-5		**C-5**	
L-6		**C-6**	
L-7		**C-7**	
L-8		**C-8**	
L-9		**C-9**	

COMMON SENSE LAWS OF LEARNING

First, learning is a produce of experience. It is a continuous process. It is not an exclusive school commodity. Therefore, the function of education is largely a guiding function. The school becomes a part of life -- not an appendage to it. It may be selective, but it must not be artificial.

Second, learning means growth and change. What we are is the sum total of what we have been -- what we have experienced. Our behavior patterns are a product of that experience -- what we think, what we do, what values we accept, what standards we live by, what we like and dislike. It is logical, therefore, to say that the objectives of education (i.e., learning) is to effect changes in human behavior.

Third, learning is as varied in kind as the types of human behavior and response. For example, there is the learning of motor skills, factural learning, the development of concept, the acquisition of attitudes, emotional beavhior, all types of personal and social adjustment, aesthetic response, exercising critical judgment, learning to solve problems.

Fourth, learning is an integrative process. An experience is never meaningful in itself -- only in its relationship to a larger pattern. Education is not a bundle of fragments. It is a design in which all parts have their functional relationship. One of the basic psychological facts is that ideas cannot exist in a vacuum. Where there is one idea there is another -- and another. They have a logical affinity. Without the blending and combination of ideas there is no context of meaning.

Fifth, learning is motivated by an inner feeling of need. External motivations are of doubtful value except for securing temporary response. The real learning that takes place under coercion is entirely different from that which is ostensibly sought. The real learning product may be an attitude of hatred, deception, fear -- rather than the development of desired understandings and appreciations.

Sixth, learning is accentuated, or sharpened, by the presence of a problem -- particularly when the solution of the problem will contribute to the satisfaction of a felt need or interest. The problem creates a block, it forces the consideration of alternatives -- either at the trial and error level or at the level of reflective thinking.

Seventh, learning results from interaction between the learner and his environment. It is impossible to separate his learning from his interpersonal contacts. "The process of mental development is essentially a social process, a process of participation." So says John Dewey.

Information Sheet HOTE 1.01b

THE INTERPERSONAL RELATIONSHIP IN THE FACILITATION OF LEARNING

So now with some relief I turn to an activity, a purpose, which really warms me -- the facilitation of learning. When I have been able to transform a group -- and here I mean all the members of a group, myself included -- into a community of learners, then the excitement has been almost beyond belief. To free curiosity; to permit individuals to go charging off in new directions dictated by their own interests; to unleash the sense of inquiry; to open everything to questioning and exploration; to recognize that everything is in process of change -- here is an experience I can never forget. I cannot always achieve it in groups with which I am associated but when it is partially or largely achieved then it becomes a never-to-be forgotten group experience. Out of such a context arise true students, real learners, creative scientists and scholars and practitioners, the kind of individuals who can live in a delicate but everchanging balance between what is presently known and the flowing, moving, altering, problems and facts of the future.

Here then is a goal to which I can give myself wholeheartedly. I see the facilitation of learning as the aim of education, the way in which we might develop the learning man, the way in which we can learn to live as individuals in process. I see the facilitation of learning as the function which may hold constructive, tentative, changing, process answers to some of the deepest perplexities which beset man today.

But do we know how to achieve this new goal in education, or is it a will-o'-the-wisp which sometimes occurs, sometimes fails to occur, and thus offers little real hope? My answer is that we possess a very considerable knowledge of the conditions which encourage self-initiated, significant, experiential, "gut-level" learning by the whole person. We do not frequently see these conditions put into effect because they mean a real revolution in our approach to education and revolutions are not for the timid. But we do, as we have seen in the preceding chapters, find examples of this revolution in action.

We know -- and I will briefly describe some of the evidence -- that the initiation of such learning rests,not upon the teaching skills of the leader not upon his scholarly knowledge of the field,not upon his curricular planning not upon his use of audiovisual aids, not upon the programmed learning he utilizes, not upon his lectures and presentations, not upon an abundance of books, though each of these might at one time or another be utilized as an important resource. No, the facilitation of significant learning rests upon certain attitudinal qualities which exist in the personal relationship between the facilitator and the learner.

We came upon such findings first in the field of psychotherapy, but increasingly there is evidence which shows that these findings apply in the classroom as well. We find it easier to think that the intensive relationship between therapist and client might possess these qualities, but we are also finding that they may exist in the countless interpersonal interactions (as many as 1,000 per day, as Jackson (1966) has shown) between the teacher and her pupils.

QUALITIES WHICH FACILITATE LEARNING*

What are these qualities, these attitudes, which facilitate learning? Let me describe them very briefly, drawing illustrations from the teaching field.

Realness in the Facilitator of Learning

Perhaps the most basic of these essential attitudes is realness or genuineness. When the facilitator is a real person, being what he is, entering into a relationship with the learner without presenting a front or a facade, he is much more likely to be effective. This means that the feelings which he is experiencing are available to him, available to his awareness, that he is able to live these feelings, be them, and able to communicate them if appropriate. It means that he comes into a direct personal encounter with the learner, meeting him on a person-to-person basis. It means that he is being himself, not denying himself.

Seen from this point of view it is suggested that the teacher can be a real person in his relationship with his students. He can be enthusiastic, he can be bored, he can be interested in students, he can be angry, he can be sensitive and sympathetic. Because he accepts these feelings as his own he has no need to impose them on his students. He can like or dislike a student product without implying that it is objectively good or bad or that the student is good or bad. He is simply expressing a feeling for the product, a feeling which exists within himself. Thus, he is a person to his students, not a faceless embodiment of a curricular requirement nor a sterile tube through which knowledge is passed from one generation to the next.

It is obvious that this attitudinal set, found to be effective in psychotherapy, is sharply in contrast with the tendency of most teachers to show themselves to their pupils simply as roles. It is quite customary for teachers rather consciously to put on the mask, the role, the facade, of being a teacher, and to wear this facade all day removing it only when they have left the school at night.

But not all teachers are like this. Take Sylvia Ashton-Warner, who took resistant, supposedly slow-learning primary school Maori children in New Zealand, and let them develop their own reading vocabulary. Each child could request one word - whatever word he wished -- each day, and she would print it on a card and give it to him. "Kiss," "ghost," "bomb," "tiger," "fight," "love," "daddy" - these are samples. Soon they were building sentences, which they could also keep. "He'll get a licking." "Pussy's frightened." The children simply never forgot these self-initiated learnings. But it is not my purpose to tell you of her methods. I want instead to give you a glimpse of her attitude, of the passionate realness which must have been as evident to her tiny pupils as to her readers. An editor asked her some questions and she responded: "A few cool facts you asked me for ... I don't know that there's a cool fact in me, or anything else cool for that matter, on this particular subject. I've got only hot long facts on the matter of Creative Teaching, scorching both the page and me" (Ashton-Warner, 1963, p. 26).

Here is no sterile facade. Here is a vital person, with convictions, with feelings. It is her transparent realness which was, I am sure, one of the elements that made her an exciting facilitator of learning. She doesn't fit into some neat educational formula. She is, and students grow by being in contact wtih someone who really and openly is.

Take another very different person, Barbara Shiel, whose exciting work in facilitating learning in seventh graders has been described earlier. She gave her pupils a great deal of responsible freedom, and I will mention some of the reactions of her students later. But here is an example of the way she shared herself with her pupils -- not just sharing feelings of sweetness and light, but anger and frustration. She had made art materials freely available, and students often used these in creative ways but the room frequently looked like a picture of chaos. Here is her report of her feelings and what she did with them.

> I find it maddening to live with the mess -- with a capital **M**! No one seems to care except me. Finally, one day I told the children ...that I am a neat, orderly person by nature and that the mess was driving me to distraction. Did they have a solution? It was suggested that there were some volunteers who could clean up all the time for others -- but it would solve it for me. "Well, some people like to clean," they replied. So that's the way it is (Shiel, 1966).

I hope this example puts some lively meaning into the phrases I used earlier, that the facilitator "is able to live these feelings, be them, and able to communicate them if appropriate." I have chosen an example of negative feelings, because I think it is more difficult for most of us to visualize what this would mean. In this instance, Miss Shiel is taking the risk of being transparent in her angry frustrations about the mess. And what happens? The same thing which, in my experience, nearly always happens. These young people accept and respect her feelings, take them into account, and work out a novel solution which none of us, I believe, would have suggested. Miss Shiel wisely comments, "I used to get upset and feel guilty when I became angry. I finally realized the children could accept my feelings, too. And it is important for them to know when they've pushed me. I have my limits, too." (Shiel, 1966).

Just to show that positive feelings, when they are real, are equally effective, let me quote briefly a college student's reaction, in a different course:

> ...Your sense of humor in the class was cheering; we all felt relaxed because you showed us your human self, not a mechanical teacher image. I feel as if I have more understanding and faith in my teachers now ... I feel closer to the students too...

Another says:

> ...You conducted the class on a personal level and therefore in my mind I was able to formulate a picture of you as a person and not as merely a walking textbook.

Another student in the same course:

> ... It wasn't as if there was a teacher in the class, but rather someone whom we could trust and identify as a "sharer." You were so perceptive and sensitive to our thoughts, and this made it all the more "authentic" for me. It was an "authentic" experience, not just a class (Bull, 1966).

I trust I am making it clear that to be real is not always easy, nor is it achieved all at once, but it is basic to the person who wants to become that revolutionary individual, a facilitator of learning.

Prizing, Acceptance, Trust

There is another attitude which stands out in those who are successful in facilitating learning. I have observed this attitude. I have experienced it. Yet, it is hard to know what term to put to it so I shall use several. I think of it as prizing the learner, prizing his feelings, his opinions, his person. It is a caring for the learner, but a non-possessive caring. It is an acceptance of this other individual as a separate person, having worth in his own right. It is a basic trust -- a belief that this other person is somehow fundamentally trustworthy. Whether we call it prizing, acceptance, trust, or by some other term, it shows up in a variety of observable ways. The facilitator who has a considerable degree of this attitude can be fully acceptant of the fear and hesitation of the student as he approaches a new problem as well as acceptant of the pupil's satisfaction in achievement. Such a teacher can accept the student's occasional apathy, his erratic desires to explore by-roads of knowledge, as well as his disciplined efforts to achieve major goals. He can accept personal feelings which both disturb and promote learning - rivalry with a sibling, hatred of authority, concern about personal adequacy. What we are describing is a prizing of the learner as an imperfect human being with many feelings, many potentialities. The facilitator's prizing or acceptance of the learner is an operational expression of his essential confidence and trust in the capacity of the human organism.

I would like to give some examples of this attitude from the classroom situation. Here any teacher statements would be properly suspect, since many of us would like to feel we hold such attitudes and might have a biased perception of our qualities. But let me indicate how this attitude of prizing, of accepting, of trusting, appears to the student who is fortunate enough to experience it.

Here is a statement from a college student in a class with Dr. Morey Appell:

> Your way of being with us is a revelation to me. In your class I feel important, mature, and capable of doing things on my own. I want to think for myself and this need cannot be accomplished through textbooks and lectures alone, but through living. I think you see me as a person with real feelings and needs, an individual. What I say and do are significant expressions from me, and you recognize this (Appell, 1959).

One of Miss Shiel's sixth graders expresses much more briefly her misspelled appreciation of this attitude: "You are a woundeful teacher period!!!"

College students in a class with Dr. Patricia Bull describe not only these prizing, trusting attitudes, but the effect these have had on their other interactions.

> ... I feel that I can say things to you that I can't say to other professors ... Never before have I been so aware of the other students or their personalities. I have never had so much interaction in a college classroom with my classmates. The climate of the classroom has had a very profound effect on me... the free atmosphere for discussion affected me ... the general atmosphere of a particular session affected me. There have been many times when I have carried the discussion out of the class with me and thought about it for a long time.

* * *

> ... I still feel close to you, as though there were some tacit understanding between us, almost a conspiracy. This adds to the in-class participation on my part because I feel that at least one person in the group will react, even when I am not sure of the others. It does not matter really whether your reaction is positive or negative, it just IS. Thank you.

* * *

> ... I appreciate the respect and concern you have for others, including myself.... As a result of my experience in class, plus the influence of my readings, I sincerely believe that the student-centered teaching method does provide an ideal framework for learning; not just for the accumulation of facts, but more important, for learning about ourselves in relation to others... When I think back to my shallow awareness in September compared to the depth of my insights now, I know that this course has offered me a learning experience of great value which I couldn't have acquired in any other way.

* * *

> ... Very few teachers would attempt this method because they would feel that they would lose the students' respect. On the contrary, you gained our respect, through your ability to speak to us on our level, instead of ten miles above us. With the complete lack of communication we see in this school, it was a wonderful experience to see people listening to each other and really communicating on an adult, intelligent level. More classes should afford us this experience (Bull, 1966).

As you might expect, college students are often suspicious that these seeming attitudes are phony. One of Dr. Bull's students writes:

> ... Rather than observe my classmates for the first few weeks, I concentrated my observations on you, Dr. Bull. I tried to figure out your motivations and purposes. I was convinced that you were a hypocrite... I did change my opinion, however. You are not a hypocrite , by any means... I do wish the course could continue. "Let each become all he is capable of being."... (Bull, 1966).

I am sure these examples are more than enough to show that the facilitator who cares, who prizes, who trusts the learner, creates a climate for learning so different from the ordinary classroom that any resemblance is purely coincidental."

Empathic Understanding

A further element which establishes a climate for self-initiated, experiential learning is empathic understanding. When the teacher has the ability to understand the student's reactions from the inside, has a sensitive awareness of the way the process of education and learning seems to the student, then again the likelihood of significant learning is increased.

This kind of understanding is sharply different from the usual evaluative understanding, which follows the pattern of, "I understand what is wrong with you." When there is a sensitive empathy, however, the reaction in the learner follows something of this pattern, "At last someone understands how it feels and seems to be me without wanting to analyze me or judge me. Now I can blossom and grow and learn."

This attitude of standing in the other's shoes, of viewing the world through the student's eyes, is almost unheard of in the classroom. One could listen to thousands of ordinary classroom interactions without coming across one instance of clearly communicated, sensitively accurate, empathic understanding. But it has a tremendously releasing effect when it occurs.

Let me take an illustration from Virginia Axline, dealing with a second grade boy. Jay, age 7, has been aggressive, a trouble maker, slow of speech and learning. Because of his "cussing" he was taken to the principal, who paddled him, unknown to Miss Axline. During a free work period, he fashioned a man of clay, very carefully, down to a hat and a handkerchief in his pocket. "Who is that?" asked Miss Axline. "Dunno," replied Jay. "Maybe it is the principal. He has a handkerchief in his pocket like that." Jay glared at the clay figure. "Yes," he said. Then he began to tear the head off and looked up and smiled. Miss Axline said. "You sometimes feel like twisting his head off, don't you? You get so mad at him." Jay tore off one arm, another, then beat the figure to a pulp with his fists. Another boy, with the perception of the young, explained. "Jay is mad at Mr. X because he licked him this noon." "Then you must feel lots better now," Miss Axline commented. Jay grinned and began to rebuild Mr. X. (Adapted from Axline, 1944.)

The other examples I have cited also indicate how deeply appreciative students feel when they are simply understood -- not evaluated, not judged, simply understood from their own point of view, not the teacher's. If any teacher set himself the task of endeavoring to make one non-evaluative, acceptant, empathic response per day to a student's demonstrated or verbalized feeling, I believe he would discover the potency of this currently almost non-existent kind of understanding.

*Rogers, Carl. Freedom to Learn, pp. 106-112.

Assignment HOTE 1.01a

HOW DO YOU LEARN?

The questions below are not easy to answer, but they will encourage you to think about the strategies you tend to use (almost unconsciously) in different learning situations. Answer each question as best you can in a few sentences; give an example (described briefly on the back of this sheet) if one comes to mind.

1. How do you tend to react (feel, cope) in new situations?

2. How do you learn theory most easily?

3. How do you attempt to make theory meaningful to you?

4. What types of things do you prefer to learn about "in your own way"? (Describe what approaches you use when trying to learn "in your own way".)

5. Do you prefer to learn theory and then have experiences? or have experiences and then study theory?

6. What is your usual reaction when you hear a totally new idea? (Or information which is totally new to you?

7. What is your reaction when you hear ideas which are in disagreement with what you have learned in previous courses?

8. In approaching a new body of material, do you prefer to work out your own system for dealing with these new ideas, applying them, finding examples, etc.? Or, do you prefer to have the instructor "lay it out" for you?

9. Do you need someone to help you work up enthusiasm for learning new material, or do you generate your own enthusiasm?

10. Which of the following instructional situations usually provides the most meaningful learning for you? Rank these in order of effectiveness (fastest and easiest way to learn - 1; slowest and most difficult way to learn - 9)

Lecture ____
Discussion ____
Observation of a "live" situation ____
Visual experience (film, video) ____
Discussion with an authority ____
Writing a paper ____
Report to the class ____
Experience ____
Reading ____

If given complete freedom to choose how you will demonstrate that you have learned theory (new information, ideas, etc.), what would be your choice?

Assignment HOTE 1.01b

Answer in writing

1. Considering the first law of learning explain why learning is a continuous process?

2. What is the objective of education?

List several types of learning.

4. Explain the statement, learning is an integrative process.

5. If learning is not motivated by external forces, how can you as an instructor help your learner develop the necessary inner motivation to learn?

6. How do interpersonal relationships influence learning?

Assignment HOTE 1.01c

After reading W-2, describe in writing ways you can motivate your learner's by the facilitation of learning.

Answer in writing.

1. Why is the use of the "normal curve" considered by Bloom as the most wasteful and destructive aspect of the present educational system?

2. According to Bloom what should be the basic task on education?

3 What ways can the teacher increase the learner's ability to understand instruction?

4. Why is it not very effective to try to increase the perseverance in students?

5. How can success effect perseverance?

6. What does Carroll describe as the key to mastery in learning?

7. What is the task for teachers using a strategy for mastery learning?

8. What strategy is being utilized by this workshop to alter the time needed for learning?

9. What is one of the most important consequences of mastery?

10. What should be the major goal of education?

1. It reduces aspirations of teachers and learners.
   It reduces motivation for learning.
   It destroys the ego and self concept of students who are frustrated and humiliated by competing with students who learn quickly.

2. To find strategies which consider the individual differences of students to promote the fullest development of the individual learner.

3. a) group study; especially small group work in which competitiveness has been replaced by cooperation
   b) tutorial help
   c) programmed instruction; especially for students who have difficulty with textbooks
   d) A/V aids and games

4. Perseverance is related to what is rewarding to an individual. If a task (reading, for example) is frustrating the learner must reduce the time he spends reading.

5. If alternative instructional methods are used to help the student learn and the task is mastered by the learner, perseverance in learning improves.

6. All students can achieve mastery if they devote the amount of time needed to the learning.

7. To find ways of altering the time individual students need for learning.

8. Self-pace; or individualized learning packet.

9. Motivation for learning.

10. Continual learning.

FUNCTION HO Teacher Education

TASK Define Individualized Instruction

HO/PNE UNIT HOTE 1.02 **HO/PNE LESSON**

OBJECTIVE(S)

Develop a definition of individualized instruction

START ➡ W-1 C-1

WRITTEN		AUDIO VISUALS	
W-1	Information Sheet HOTE 1.02	A-1	
W-2		A-2	
W-3		A-3	
W-4		A-4	
W-5		A-5	
W-6		A-6	
W-7		A-7	

LABORATORY		CHECK POINT	
L-1		C-1	Self Check HOTE 1.02
L-2		C-2	
L-3		C-3	
L-4		C-4	
L-5		C-5	
L-6		C-6	
L-7		C-7	
L-8		C-8	
L-9		C-9	

ASSUMPTIONS (USUALLY INCORRECT) CONCERNING GROUP INSTRUCTION

1. The teacher is the source of knowledge and "faces 20 or more students in a uniform and regulated environment.
2. All students are at the same level of understanding.
3. All students receive and process information at approximately the same rate.
4. All students respond to a single type of stimulation or motivation.
5. Although there is some degree of difference, most students need approximately the same amount of assistance.
6. All students learn concepts with about the same amount of cognitive or manipulative practice.
7. Audiovisuals are regarded as "aids" to teaching and reference books are supplements to instruction.
8. The student's role is to react to content selected by the teacher.
9. All students have the same amount of "out-of-school" time to devote to studying.
10. All students have "ideal" conditions under which to study at home.
11. Students in classes do not have outside concerns which could detract from their attention in class.
12. All students have the same appreciation for what is being taught.

ASSUMPTIONS CONCERNING INDIVIDUALIZED INSTRUCTION

Individualized Instruction:

1. Allows each student to progress at his own optimum rate.
2. Allows students to enter at any time during the program.
3. Is suitable for slow or fast learners and for students with special objectives.
4. Is valuable for the student who enters with advanced standing. Example: A high school graduate who pursued a secondary program in the occupational field.

5. Is an effective method of serving the disadvantaged and handicapped student.

6. Through its flexibility allows a student to recycle through part or all of any instructional unit.

7. Provides frequent feedback to the student and instructor concerning the student's progress.

8. Permits more instructor time with needy students and more personal contact with all students.

9. Can be used to replace, supplement, or enrich group instruction.

10. Allows the instructor to become a manager of educational experiences.

11. Can be developed using equipment and materials already available.

12. Can be developed with a minimum of sophistication.

13. Can mean better utilization of shop or laboratory equipment and less of it.

14. Minimizes repetitive laboratory instructional equipment.

15. Provides skills and knowledge at proper stage of readiness.

16. Provides motivation and stimulation.

How Individualized Instruction Differs From Traditional Instruction

Traditionally, instruction has been oriented toward a group of class. Common assignments are given to all members of the group; and if individual projects are assigned, all students are expected to complete their projects on the same specified date. Thus, these student learning experiences are group-oriented, teacher-paced, and scheduled at a time convenient to the teacher and the school.

In contrast, individualized instruction is oriented toward the individual. Appropriate learning experiences are assigned each student. In order to determine what is "appropriate" for each learner, some type of diagnostic procedure is used. Once these learning experiences are identified, instruction is mainly self-directed, self-administered, and scheduled, within the school's broad time constraints, at a time convenient to the learner.[1]

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[1] Edling, Jack V. Individualized Instruction, DHEW Publication N. (OE) 72-9.

A Define:

1. Group instruction
2. Audio (auto) tutorial instruction
3. Programmed instruction
4. Independent study
5. Correspondence course

B. Define individualized instruction.

C. Contrast and compare a with b.

D. Now, prepare your own definition.

FUNCTION HO Teacher Education

TASK Describe advantages of individualized instruction

HO/PNE UNIT HOTE 1.03 **HO/PNE LESSON**

OBJECTIVE(S)

Describe how the advantages of individualizing instruction can help your program.

START ➡ W-1 L-1 C-1

WRITTEN

W-1 Information Sheet HOTE 1.03
W-2
W-3
W-4
W-5
W-6
W-7

AUDIO VISUALS

A-1
A-2
A-3
A-4
A-5
A-6
A-7

LABORATORY

L-1 Assignment Sheet HOTE 1.03
L-2
L-3
L-4
L-5
L-6
L-7
L-8
L-9

CHECK POINT

C-1 Instructor Check HOTE 1.03
C-2
C-3
C-4
C-5
C-6
C-7
C-8
C-9

Information Sheet

Robert Keuscher gives the following reasons for individualizing instruction.

1. Philosophically, it is consistent with the principles upon which our form of government, which spawned our educational system, is based.

2. The very nature of our democratic system and the way it functions demands knowledgeable, thinking participants.

3. Assembly line methods are tending to produce mass-produced, standardized citizens at the expense of individuality.

4. As society grows increasingly complex, there is a greater demand for a diversity of talents and skills.

5. It is probably the most efficient way to educate if one focuses on the product rather than the process.[2]

In the October, 1970 issue of Training in Business and Industry, an interview with Don Koosis revealed one reason major business firms are going to individualized instructional methods.

Q. Why have major firms become so enthusiastic about individualized instruction?

A. Because it pays. It allows more flexible and efficient use of manpower -- both trainee time and instructor time. Big firms such as IBM, AT&T and Ford Motor have moved in this direction -- have undertaken programs costing millions -- to anticipate future needs and changes in the labor market. Read their projections and you see that the number of trainees are expected to double every few years. The capable men and women needed as instructors are precisely the same ones needed in the field for home office support and first line management. They cannot hope to increase the number of instructors so dramatically -- and still maintain uniformity and quality control in training. Individualized instruction offers a solution to this problem.

When considering the common classroom situation, there are many compelling reasons to be considered when deciding why instruction should be individualized. Probably the most important consideration is that learning is most effective for everyone when it is tailored to their individual needs; therefore, if you consider student success as a primary goal, you should consider individualized instruction as your major instructional method.

If you consider utilization of training facilities, only individualized instruction offers the best solution, full enrollment, by allowing open entry and exit at any time during a program.

By allowing open entry and exit, you supply trained personnel when they are needed during the entire year. By this feature you also allow students to follow up on occupational decisions when they make them and are available to begin training.

Individualized instruction provides the learner with a more realistic view of the working world. It allows him to stand on his own and permits the instructor to make an assessment of a trainee's abilities without comparison to a group. The only deterrent to his success is his own potential and desire.

Many other reasons for individualizing instruction are valid, but be sure and consider your own situation when determining them. Not only will instructors and administrators differ, but also differences in programs may dictate different "whys."

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[1] Robert E. Keuscher, "Why Individualize Instruction," in Individualized Instruction, ed. Virgil M. Howes (New York, N.Y., 1970), p. 6.

[2] Keuscher, op cit., p. 7.

REFERENCES FOR FURTHER STUDY

Howes, Virgil M. Individualized Instruction. New York: The Macmillan Company, 1970.

Information Sheet HOTE 1.03

Advantages and Disadvantages of Individualized Instruction

In the following discussion, the advantages of individualized instruction are contrasted against the traditional group method. Each item discussed relates to a change from one method to the other. In some cases these advantages will be for the teacher and in some cases for the student; in other cases the advantage may be mutual to both and even include the school and community.

Individualized instruction frees the teacher from the teaching of the routine basic skills of a subject and enables him to meet the instructional needs of those who require more help than others. The instructor is able to concentrate on the learning of individuals because he is not lecturing all of the time. Since the course is planned out and materials are available to the learners when they are needed, students may progress as fast as they can or as slowly as they need to. They are assured of a better chance of success and the instructor receives the satisfaction of a higher percentage of success in his students.

When designed properly, individualized instruction incorporates many points along the way so that both the student and instructor have frequent feedback. Neither of them must wait until a unit test to find out the student's learning has not been successful somewhere during the unit. Since the student has the time he needs to successfully learn and he is not threatened by failure, he continues to make progress toward his specific goal even if he has trouble at some point in the learning sequence. We have set the skills and knowledges we expect of him, and he knows what they are, therefore, he does not expect to fail but expects to be successful.

There is an automatic unit perfection accomplished before the student proceeds to the next frame of information. (Behavioral scientists tell us that the key to successful learning is that the learner has indeed learned all the prerequisite material.) In group instruction, if a student does not succeed in one unit, he is handicapped in following units because he had to move on to the next lesson with the group. With individualized instruction, it is possible to recycle the student over any segment or all of the unit of instruction without retarding the progress of the rest of the class. It is also possible to develop sequences of learning which are individually tailored to a particular student. This is almost impossible in the traditional method.

With individualized instruction it is possible for a student to enter at any time there is an opening in a program and be placed at a level for which he is ready. This level may be either above or below the normal starting level.

Because the students are graduating at various times during the year, there is a small continuous supply of workers and the market is not flooded at one time of the year. This helps both industry and the trainee. Since students may enter during any time of the year, the facilities of the school are better utilized by having higher enrollment at all times, without the lowering of enrollment as the school year progresses.

Although the picture may seem rosy at this point, there are some disadvantages to indivdiualized instruction. The most prominent disadvantage is that it means more work for the instructor both in developing and implementing this type of instruction. There is much more paper work and record keeping is more complicated. Ordering materials and books is a problem since everything needed during the year must be on hand at all times. It will be more difficult for the school to allow entry at all times during the year and graduate whenever a student is finished.

The instructor must be an expert at all times over all phases of the program. He will not have time to review the night before for a lecture. Students at all levels will be seeking his help in any one day.

One other consideration should be mentioned here. To many who have not used individualized instruction, motivation of students seems to present a problem. Many believe that students on their own will waste time and not learn without the threat of a coming test or teacher pushing. This has not proved to be the case in the programs which are operating. The real picture seems to be that motivation increases and success increases. There is not as much time for "playing around" and discipline problems decrease and even disappear. When a student is placed in a situation where everything depends on him and he is being evaluated on his performance to a standard and not to a group, he has no way to success but by his own efforts.

This is a great advantage of individualized instruction. Students depend on themselves and gain confidence that will be needed when they compete in the real world of work.

1. List below the two major problems you have with traditional instruction and how individualized instruction will solve them.

2. List below the two major disadvantages of individualized instruction which you believe will prevent you from developing and implementing a program successfully.

3. Discuss these with the instructor so that he can provide you with specialized help in future units.

FUNCTION Individualized Instruction

TASK Use the Teacher's Guide

HO/PNE UNIT HOTE 2.00 **HO/PNE LESSON**

OBJECTIVE(S) Correctly use the Teacher's Guide.

START ➡ W-1 › L-1 › C-1 › W-2 › L-2 › C-2 › W-3 ›
L-3 › C-3 › W-4 › L-4 › W-5 › L-5 › C-4 › W-6 › L-6 ›
C-5 › W-7 › L-7 › C-6 ›

WRITTEN

W-1 Text Assignment HOTE 2.00
W-2 Text Assignment HOTE 2.00
W-3 Text Assignment HOTE 2.00
W-4 Text Assignment HOTE 2.00
W-5 Text Assignment HOTE 2.00
W-6 Text Assignment HOTE 2.00
W-7 Text Assignment HOTE 2.00

AUDIO VISUALS

A-1
A-2
A-3
A-4
A-5
A-6
A-7

LABORATORY

L-1 Assignment HOTE 2.01
L-2 Assignment HOTE 2.02
L-3 Assignment HOTE 2.03
L-4 Assignment HOTE 2.04
L-5 Assignment HOTE 2.05
L-6 Assignment HOTE 2.06
L-7 Assignment HOTE 2.07
L-8
L-9

CHECK POINT

C-1 Self Check HOTE 2.01
C-2 Instructor Check HOTE 2.00
C-3 Self Check HOTE 2.02
C-4 Self Check HOTE 2.03
C-5 Self Check HOTE 2.04
C-6 Self Check HOTE 2.05
C-7
C-8
C-9

RESOURCE AND TEXT ASSIGNMENT SHEET

ASSIGNMENT NO.	TEXT NO.	PAGES	STUDY ASSIGNMENT
HOTE 2.00	T.G.	Section A 1-4	W-1; Teacher's Guide
HOTE 2.00	T.G.	Section B 5-10	W-2; Teacher's Guide
HOTE 2.00	T.G.	Section C 11-12, 23	W-3; Teacher's Guide
HOTE 2.00	Vol. I	Intro HO 2.00 Unit Sheet	W-4; Health Occupations Student Manual
HOTE 2.00	T.G.	Section D 27-28	W-5; Teacher's Guide
HOTE 2.00	T.G.	Section E 41-42	W-6; Teacher's Guide
HOTE 2.00	T.G.	Section F 45	W-7; Teacher's Guide

Assignment HOTE 2.01

Complete the following in writing and check your answers with the key.

1. A characteristic of this program is that the students work independently. Give three examples of how this personally benefits the student.

2. In what ways is the program self-motivating?

3. According to the objectives of the curriculum design, name three benefits which can be deduced.

4. List the characteristics of a truly flexible individualized program.

Assignment HOTE 2.02

Answer in writing and have your instructor check your work.

1. Must the skills be learned in the sequence they are listed? Explain.

2. Indicate by code and title those HOS units which you feel would be appropriate for the student to learn in order to care for a CVA patient.

3. Indicate by code the Anatomy and Physiology and Medical Surgical Nursing units you feel would be appropriate for the student to learn in order to care for a CVA patient.

4. List the titles of the manuals.

Assignment HOTE 2.03

Answer in writing and check your work with the key.

1. If you wish to use additional audio-visuals in certain lessons in which they are currently not mentioned. How would you convey this in writing to the student?

2. What should be done with the textbook list?

3. Identify by numbers those texts strictly associated with drugs.

4. Give an advantage of color coding? What color is the Self Check Key?

Assignment HOTE 2.04

Answer in writing. Check your own answer.

Why is Intro HO 2.00 used for all learners initially?

Assignment HOTE 2.05

Answer the following questions in writing.

1. What is available for introducing your students to the individualized program? Where is it located?
2. Are the units in sequence? Explain.
3. Will students write in the manuals?
4. How might you supervise the Self Check Keys and the Instructor Keys?
5. Which unit is recommended for preview prior to taking licensing exams?
6. Which unit requires a programmed text? Is it used in its entirety?
7. What is the Individual Student File and who uses it? What dates are to be entered on the Progress Chart?
8. What device has been developed to assist learning medical terminology? Where is it found?

Assignment HOTE 2.06

Answer these questions in writing and check your answers with the key.

1. What tool is provided to evaluate cognitive or concept learning?
2. What tool is provided for manipulative or psychomotor learning?
3. How might the Checklists be used to provide a letter or numerical grade?
4. What is the difference between a Performance Checklist and a Rating Scale?
5. Using the Rating Scale available, what grade might be assigned to a student who performs 2 on one-half of the characteristics and 3 on the other half of the characteristics?
6. Since this curriculum is performance-based, how does this affect evaluation?

Assignment HOTE 2.07

Answer the following question and check your answer with the key.

If a new edition to a textbook is published, how might you handle this change?

Self Check Key HOTE 2.01

1. a. the student may progress at his own rate of learning without feeling rushed by more advanced students nor held back by slower students
   b. the competitive pressure is removed
   c. the student may progress through the units in an order best decided for him by himself and the instructor
   d. the student may enter a program according to his need and exit when his needs have been met

2. a. the tasks a student works on are related to what he wants to do in the future
   b. theory is learned as close as possible to the task
   c. each student can learn as fast as he can
   d. immediate feedback is provided by the keys included with the assignments

3. a. enrollment remains at its maximum
   b. transients may enter a program at any time as long as space is available
   c. students progress at their own rate
   d. maximum use of equipment and facilities
   e. a curriculum path can be tailored to the student based on his needs, interests and past experience

4. a. students will enter whenever they have needs and space is available
   b. students will exit whenever these needs have been met
   c. students will progress through the curriculum by the path which most nearly fits their needs
   d. at any one time it will be possible that no two students are working on the same task or equipment
   e. the facilities will be available for use during a major portion of the day

Self Check Key HOTE 2.02

1. To add audiovisuals you have in your library but not currently listed on the Text and Resource Sheet, you simply insert the title of the AV on the Text and Resource Sheet with the reading assignment which is related to it. You do not have to change the flow on the unit sheet.

2. The list should be laminated and posted near the storage of the texts. The spines of the texts may be coded according to this list in order to assist the student in obtaining the text.

3. Numbers 6, 7, 8, 9, 29, 33

4. Color coding facilitates the use of the units. The Self Check Key is blue. (obviously)

Self Check Key HOTE 2.03

1. Lesson Intro HO 1.00 will explain the individualized program to your students. It is found in Health Occupation Skills Vol I and is accompanied by a slide/tape presentation called "Introduction to Individualized Learning."

2. No,units are not in any sequence because there is no one place to start (except for Intro HO 2.00) and the units are independent (except for prerequisites). Also, the lessons within a unit need not be completed in sequence. This facilitates meeting the individual needs of every student.

3. Space has been provided in the HOS packets for answers. If the packets are the property of the students and not to be reused, then the student may write in them.

4. The Keys are to be filed in a cabinet. The Self Check Keys are to be available to the students as they need them. The Instructor Keys are to be available to the Instructor only. If you feel your students need close supervision, you may file all the keys and not allow the students access to any keys; thus, Self Checks also become Instructor Checks.

5. MHI (Mental Health and Mental Illness)

6. BDA (Basic Drug Administration) No, lessons may be omitted which you feel are not essential.

7. The Individual Student File is a Progress Chart used to keep a record of skills evaluated. It is the property of the student. Copies of this Progress Chart should be provided to the Clinical or Nursing Supervisor. Dates recorded are those of Laboratory Evaluation Completion, Clinical Evaluation completion and dates of additional Clinical Experience.

8. Games. One is found in Section D of the Teacher's Guide and the other game is found in BDA 2.02.

Self Check Key HOTE 2.04

1. Multiple choice test items.

2. Performance Checklists are provided to evaluate the performance of tasks. They are also provided for several theory units such as MS (Medical-Surgical) and MHI (Mental Health and Mental Illness).

3. Checklists are best suited for a grade of satisfactory or unsatisfactory but if a numerical or letter grade is desired you may wish to assign the highest grade if the learner correctly completes the sequenced steps on the first evaluation date and then a lower grade could be assigned for each successive repeat necessary.

Self Check Key HOTE 2.04
Continued

4. A Performance Checklist is conducive to a satisfactory or unsatisfactory performance evaluation. A Rating Scale is less subjective and more appropriate for assigning letter or numerical grades.

5. 10 characteristics times 2 = 20 points
10 characteristics times 3 = 30 points
50 points

50 divided by 20 = 2.5

According to the Conversion Scale a B could be assigned.

6. In a performance-based curriculum, evaluation should be how well the learner performs the task. Written tests should evaluate concept or cognitive learning only and written tests should make up only a small percentage of the learner's grade.

Self Check Key HOTE 2.05

Changes in textbooks can be managed by just placing the title on the yellow resource and text assignment sheet and allowing students to search for the necessary information or if time permitted the appropriate pages could be written in by an instructor or assistant. No change in the lesson or unit sheets is necessary.

Instructor Key HOTE 2.00

1. No. The sequence in which the units are listed is random and the order in which a student works through them is individually determined.

2. Answers may vary, but most likely will include:

HOS 1.00 AM and PM Care
HOS 2.00 Assist with Bathing
HOS 3.00 Care of Skin Accessories
HOS 4.00 Care for Beds
HOS 5.00 Aseptic Technique
HOS 7.00 Vital Signs
HOS 8.00 Assist with Ambulation
HOS 9.00 Positions Bed Patient
HOS 12.00 Emergency
HOS 13.00 Assist with Respirations
HOS 14.00 Assist with Nutrition
HOS 15.00 Urine Elimination
HOS 16.00 Bowel Elimination
HOS 19.00 Administer Medications
HOS 21.00 Maintain Fluid Balance
HOS 22.00 Medical Records
HOS 29.00 Special Care of the GI Tract
HOS 30.00 Patient Environment

3. Answers may vary slightly.

AP 3.00 Circulatory System
AP 7.00 Respiratory System
AP 11.00 Body Fluids
MS 5.00 Chronic Illness
MS 9.00 Cardiac Conditions

4. a. Health Occupation Skills
b. Personal and Vocational Relationships
c. Nutrition and Diet Therapy
d. Basic Drug Administration
e. Anatomy and Physiology
f. Nursing of Children
g. Maternal and Newborn Care
h. Mental Health and Mental Illness
i. Medical Surgical Nursing